The New Scholasticism

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by Paul Jacoby

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All manuscripts and books for review should be sent to THE EDITOR, THE NEW SCHOLASTICISM, 650 JOSEPHINE STREET, DENVER 6, COLORADO.

Manuscripts should be typed double-spaced, with footnotes preferably on a separate sheet and prepared according to our manual of style. In articles exceeding 25 printed pages, the editors reserve the right to divide the manuscript into installments which need not appear in consecutive issues.

Business communications, including subscriptions and changes of address, must be addressed to the BUSINESS MANAGER, THE NEW SCHOLASTICISM, THE CATHOLIC UNIVERSITY OF AMERICA, WASHINGTON 17, D. C.

Published by

AMERICAN CATHOLIC PHILOSOPHICAL ASSOCIATION at 20 Hopkins Place, Baltimore 1, Maryland.

(*Do not address any communications to this Baltimore address.*)

Entered as second-class matter December 13, 1926, at the Postoffice at Baltimore, Md., under the Act of March 3, 1879.

The New Scholasticism

A Quarterly Review of Philosophy

Volume XXIV JANUARY, 1950 Number 1

Three Centuries of Doubt

An Editorial

THE YEAR 1950 MARKS the third centennial of the death of Descartes. At this midpoint of our Atomic Century, secular philosophy will burn incense to Descartes as an inspiration of modern intellectual progress. It is called a "supernaturalism" to turn that pietism around, raising first the problem of progress before deciding what kind of inspiring Descartes did.

But the fact is that doubt, when it is universal, cannot be a source of progress. It is a hesitation, a holding back, rather than a forward march, and if literally followed, its own inner logic would brake all thought to a standstill. Doubt makes for an over-emphasis on the self and on self-consciousness; when rigidly universalized, it plunges toward the nihilism to which Heidegger and Sartre, descendants of Descartes, have today carried his premises. Certainly that loss of adequacy, of confidence, of hope, and of generosity which plagues contemporary man has grown in that intellectual and moral atmosphere which Descartes, if he did not wholly cause, at least ratified by his general principles.

Cartesian dualism effectively parted mind and body, and the body seemed to yield itself to modern biology and even psychology. But the mind, the soul, the inner source of unity and personality in man, was by-passed in the march of experimental disciplines and left outside the modern debate. Certainly a spirit which refuses to deem man's inmost yearnings worthy of learned investigation does not, of itself, make for truly human progress; experimental scholarship can answer every question

except the big ones. Cartesian dualism foments war inside of man, and it is in this inner life where peace and progress matter most. Descendants of Descartes have a formula for overcoming the post-Cartesian psychological warfare of matter and spirit. They deny that spirit exists. But that only increases all the more the contradictions in the human heart.

In the physical world, Descartes denied truly finality and saw only quantity in mechanical motion. Quantity, of course, does not imply motion at all, let alone progress, and what is mechanical can go forward or backward depending not on any intrinsic principle of progress but on the whims of the mechanic extrinsic to it. True enough, this extrinsic mind can exploit the world of quantity and mechanism, but by its dualism, Cartesian thought puts the mind on a level outside of strict science and objective law. In a remote way, Cartesianism led to the secrets of the atom, but almost by the same token, it helped to mold that moral indifference of men which makes the control of the atom so worrisome. A spirit that yields man the most lethal of weapons and then charges him with a moral indifference makes for suicide.

In short, a march directed to negate itself is not truly progressive but destructive, and this is an historical judgment upon Descartes after three hundred years. Genuine practical success, while not of course the essence of truth, is certainly an effect of it, and three centuries have been required to reach in the practical order this staggering analogue to Cartesian speculation which atomic energy provides. The Cartesian doubt, abetting scientism on the one hand but weakening religion and morality on the other, lures learning to its own execution.

Of itself, doubt does not make for progress. On a universal scale, it tends to cancel itself, reducing not to a positive movement but to zero. In this respect, doubt is not a sign of independence since it cannot survive on its own. It increases human unrest rather than allays it. It kills rather than vitalizes human progress. After three hundred years, it is time that the dead should be buried.

The Naturalism of Roy Wood Sellars

by Richard R. Baker

THE NAME of Roy Wood Sellars of the University of Michigan has long been associated with that philosophic position known broadly as naturalism. Although disagreeing with fellow naturalists, such as Dewey, Russell, and Santayana, on many specific issues, chiefly in epistemology, Sellars is one with them in the affirmation of naturalism's basic postulates, namely, that the spatio-temporal universe is the whole of reality, that this physical universe is self-sufficient and self-enduring, and that to posit the existence of any kind of spiritual entity within such a universe or to affirm the existence of a transcendent First Cause of such a universe is purely gratuitous and unnecessary.

It is the purpose of this article to examine the principal doctrines of Sellars, one of the foremost proponents of naturalism in America, and one who expresses his philosophic creed with unusual force and lucidity. In the first part of the article I shall simply present his fundamental doctrines in epistemology, cosmology and ontology, reserving the latter part for critical evaluation and comment.

Theory of Knowledge

Sellars has always regarded epistemology as the pivotal part of philosophy. "At the root of all differences in philosophy you will find epistemology." [1] Defining it as "the attempt to answer inevitable questions about the nature, locus, development, conditions and reach of knowledge," [2] he has persistently main-

[1] *The Philosophy of Physical Realism* (New York, 1932), p. 235.

[2] R. Sellars, *The Principles and Problems of Philosophy* (New York, 1926), p. 139.

tained that a satisfactory answer to these questions is an indispensable preliminary to any discussion of cosmological and ontological problems. In his first book, *Critical Realism* (1916), and in a considerable portion of each of his later publications he has painstakingly analyzed his distinctive theory of knowledge, constantly reminding the reader of the logical connection between his epistemology and his conclusions in ontology and cosmology.

As a critical realist, Sellars claims that such a theory is "one with natural realism as regards the directness and objectivity of knowledge," [3] and that "it is the external object which is known and *not* the idea of the object." [4] But critical realism differs from natural or naive realism by defining knowledge not as the literal presence of the object in the subject, or as the immediate intuition of the object, but rather as a "revelation of the characteristics of the object." [5] "Instead of the object being literally given to the mental act of knowing, it is selected and interpreted. . . . We perceive and think external things in terms of predicates developed within experience. These predicates are regarded as *revealing* the actual characteristics of the external thing. . . . The external thing selected and referred to as an object is never existentially given in experience but is cognitively given in the sense that it is interpreted and revealed." [6]

Let us see how Sellars arrives at this notion of knowledge. First of all, he is convinced that "idealism was an *interim* position, of worth until the social sciences had developed and until the new naturalism and realism were under way." [7] The idealist's doctrine, initiated by the false dualism of Descartes, that since the idea is the object of knowledge, we therefore have no right to affirm an extra-mental reality, was an unwarranted

[3] *Physical Realism*, p. v.
[4] *Ibid.*, p. v.
[5] *Principles and Problems*, p. 132.
[6] *Physical Realism*, p. 77.
[7] *Ibid.*, p. 21.

assumption arising from an inadequate analysis of the cognitive situation. On the other hand, the naive realism of common sense, which believes that the object is presented to an immediate awareness, that we can directly intuit, inspect, apprehend objects, is a position that cannot stand up under a critical examination of the factors involved in knowing. The difficulties confronting natural realism make it philosophically untenable. If we directly apprehend objects, how can we possibly account for the fact that "the content of perception seems to be a function of many processes both extra-organic and intra-organic," [8] or the fact that "the appearance is not an absolute, intrinsic character of the object, but is relative to conditions," [9] or the fact that "the datum of perception varies from individual to individual," [10] or finally the fact that "the appearance of a thing changes while the thing remains the same"? [11] In short, the subjective and relative character of that which is immediately given to consciousness in perception makes impossible the belief that we immediately intuit the real object as it is in itself.

As a critical realist Sellars is convinced that, contrary to the idealists, we must take the objective claim of knowledge seriously, and, contrary to the natural realists, we must recognize the proper limitations of knowledge. To understand this objective claim of knowledge, we must rid ourselves of the false notion that knowledge consists simply in the awareness of contents or impressions passively received in consciousness.

> If we *reduce* perceiving to an awareness of sense-data, it is impossible to do justice to human knowledge; [12] . . . the treachery of the traditional scientific viewpoint in these matters . . . lies in the stress upon internal entities as mere effects not taken up and used by the organism. The possibility of *response* is disregarded.[13]

In other words, knowing must be rightfully seen as an action,

[8] *Principles and Problems*, p. 44.
[9] *Ibid.*, p. 49.
[10] *Ibid.*, p. 51.
[11] *Ibid.*, p. 50.
[12] *Physical Realism*, p. 36.
[13] *Ibid.*, pp. 38-39.

an activity of the living organism directly referring to the thing. The data or contents intuited in consciousness are not the primary objects of knowledge; they are merely the conditions of a knowledge of things. They are the means or instruments of a knowledge of physical objects. Knowing, therefore, is a think*ing* of the object through the mediation of intuited contents. It is the reaction of the organism to the effects produced in it by external stimuli, but it is an active, interpretative response which uses these intuited contents to comprehend the thing. "Knowledge of the physical world is a comprehension of the characteristics of things by means of subjective contents." [14] Knowledge

> is an interpretation of objects. Thus objective reference is intrinsic to the very nature of knowing whether perceptual or explicitly judgmental. This analysis rids us of the subjectivistic bias of traditional representative realism. . . . We must not drop back to an atomistic psychology of sensations and images which ignores empirical facts. Our mental activity sustains for us an experienced structure in which we sense ourselves as interpreting objects in terms of predicates revealing their characteristics.[15]

In short, subjective contents are not that which we primarily know, but that by which we know things.

The real distinction between the content and the object of knowledge likewise determines the limits of knowledge. Since it is not the object, but only the subjective datum, which is presented to an immediate awareness, knowledge can be only "a sort of mental pointing and not a literal transcendence." [16] It is a "descriptive disclosure of external objects which are denoted and disclosed but not given in any other fashion." [17] Again,

[14] R. Sellars, *Evolutionary Naturalism* (Chicago, 1922), p. 35.

[15] "Realism, Naturalism, and Humanism," in *Contemporary American Philosophy* (New York, 1930), II, 270.

[16] *Ibid.*, p. 271.

[17] *Physical Realism*, p. 58.

. . . knowing is an affair of approximate characterization of objects. It is, decidedly, not an intuition but something mediated and improveable.[18] The content of knowledge is, as it were, a translation of the characteristics of the thing; and, as in all translation, there is reproduction and yet difference. . . . Yet knowledge can never be anything but a pale reflection of the object. Knowledge should not claim to be *being*.[19] We *mean* the thing rather than see it, and our knowledge is a series of abstract statements for which data are merely cues.[20]

What guarantee have we that the content of knowledge is a faithful translation of the characteristics of the thing? According to Sellars, the aptitude of the content to reveal the thing arises from the fact that a

determinate content is the object of the organism's nervous attention, and so controls the rise in the brain of a content of which the subject-self is aware. . . . The datum is a correlated response to the stimulus. And it is this differential correlation that makes the present content valid material for knowledge of the physical world. . . . The value of sense-data as material for knowledge rests, therefore, upon this responsible differential correlation between them and things. . . .[21]

"Our experience indicates an actual, causally-based correlation between the physical existent and the datum."[22] The revelatory character of the content is simply of the very nature of the knowledge claim.

The postulate of knowledge is the cognitive or revelatory value of the idea taken as a content or character-complex and not as a mental existent. In other words, the content which we apprehend must have the property of reproducing something about the object, of conveying in its own medium the form of the object.[23]

Sellars distinguishes between the perceptual and the explicitly

[18] *Ibid.*, p. 74.
[19] *Evolutionary Naturalism*, p. 37.
[20] *Ibid.*, p. 42.
[21] *Ibid.*, p. 37.
[22] *Ibid.*, p. 36.
[23] "Knowledge and its Categories," *Essays in Critical Realism*, (reprinted in *The Development of American Philosophy*, New York, 1940),

judgmental or conceptual levels of knowledge. In perceptual knowing there is "an interpretation of objects in terms of predicates founded on sensory data without a critical study of those data." [24] Here there is no explicit awareness of the distinction between object and content, and because of the practical requirements for appropriate behavior on the part of the organism, the object of perception is automatically identified with its content. It is only after a critical reflection that we come to realize that what seems to be a simple "inspection" of a physical existent is really a very complex act which presupposes correlations, meanings, beliefs, interpretations and affirmations.

Above the level of perception, where contents are relative to personal interests and to the private situation of the particular perceiver, there is the level of conception.

> Critical realism stands for the reality and fundamental significance of another kind of knowledge, a knowledge which presupposes this interpretative awareness of the data of observation as a foundation, and yet goes beyond it to the reference of propositions, built upon these data, to affirmed physical existents, as knowledge about them. . . . The object of knowledge is identical with the object of perception; but, whereas in perception we tend to clothe the object in the apprehended content, we now think of the content as *material* for obtaining knowledge about the object. We use the content in the critical knowledge-claim.[25] As conception replaces perception, we build up a construction of an external world the parts of which can be measured and located with reference to each other and not merely with reference to a particular percipient. . . . The object thus selected is interpreted in terms of certain predicates which are now consciously assigned to it. In this way I *think* the object. We may say that knowing an object at this level is thinking it in terms of predicates. These predicates are supposed to give the actual characteristics and relations of the object.[26] There is, of course, no sharp break between perception and propositional

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[24] *Physical Realism*, p. 92.
[25] *Evolutionary Naturalism*, p. 34.
[26] *Principles and Problems*, p. 128.

knowledge, for propositional knowledge is based upon perception, to which it must remain responsible. Scientific knowledge is clearly only a more explicit, more critical, and more developed form of knowledge than perception.[27] Just as we perceive an object in terms of its appearance, so we conceive it in terms of its corrected appearance, which may be called the predicates of judgment.[28] To think a thing in terms of logical ideas, discriminated characters, universals or predicates used in propositions is essentially the same kind of act whose first stage we noted in perception.[29] Genetic analysis soon convinces the unprejudiced thinker that all ideas, even the most abstract, have their roots in sense-experience and so are continuous with presentations.[30]

It is at this second level of knowing that we become explicitly conscious of the distinction between the object and the predicate idea which is revelatory of it.

What is it about the object that we can know? What is the grasp of knowledge? Sellars, in keeping with his basic distinction between content and object of knowledge, affirms that

knowledge falls far short of that intimate insight into the stuff and labor of the world that the idea of intuition conveys. It is knowledge of the relative positions of things, their internal structure, their effects on other things, etc. It is information of the sort that sense-data can mediate.[31] To know the thing is therefore not to be the thing. Nor is it to know the thing to have a copy-like reproduction of the thing. . . . It (knowledge) is the recognized possession by the mind of the form of the thing, that is, its position, size, structure, causal capacities, etc.[32] Again, factors of the following sort appear to me to be the characteristics of things we comprehend: comparative size, texture, constituents, relations to other things, the ways they affect other things and are affected, processes of change, functional capacities, behavior.[33]

It is only these characteristics of the physical world which can

[27] "Knowledge and its Categories," p. 438.
[28] *Principles and Problems*, pp. 128-129.
[29] *Ibid.*, p. 131.
[30] *Evolutionary Naturalism*, p. 32.
[31] *Ibid.*, p. 50.
[32] "Knowledge and its Categories," p. 440.
[33] *Evolutionary Naturalism*, p. 35.

be reproduced and mentally grasped. Briefly, our knowledge of the external world is "essentially what science has worked out—structure, relative dimensions, relative mass, energy-content, behavior." [34]

Two important facts must be emphasized in this theory of knowledge. First, the fact that precisely because knowledge is not being, but "in its way and for its purpose a substitute for being," we should not expect to grasp the very stuff or nature of physical reality. We must be content to accept knowledge for what it is, a comprehension of things through the medium of ideas which can reflect only the pattern or structure or "form" of these things. But from this fact we should not conclude that reality is only form. Things are "formed stuff." "Reality is formed matter. Reality has structure and organization. It has a determinate nature. . . . It is reality that is active and the seat of processes, not a form or a matter." [35] Again, "critical realism maintains that objects are *more than* their characteristics and believes in an existential stuff that does not enter consciousness." [36] As a second point, it is important to remember that simply because we grasp in the cognitive content a correlate of only the characteristics or forms of this stuff and not the stuff itself, we must not project a duality of "form" and "matter" into reality and think that things are really composed of these two elements. The distinction is purely epistemological, not ontological.

In summary, the essential doctrine of critical realism (also described as non-apprehensional realism, epistemological dualism) may be expressed in a few sentences:

> It (critical realism) holds that the human organism can select and mean physical objects by means of consciousness which can never literally enter consciousness but only *appear* there in terms of a content. The

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[34] "Realism, Naturalism, and Humanism," p. 273.
[35] "Knowledge and its Categories," p. 439.
[36] *Principles and Problems*, p. 153.

object is transcendent but the content is regarded as revealing the characteristics of the object. It is through what may be called the cognitional identity of characters in consciousness and the characteristics of the object that knowledge is possible. In short, we think objects outside our consciousness in terms of discriminated characters in our consciousness, a process beginning with perception.[37]

These discriminated characters, structure, relations, composition, behavior, constitute the knowable "form" of the thing, —the existential "stuff" cannot be given in consciousness.

After this outline of the principal features of Sellars' theory of knowledge, we may indicate briefly certain important corrollaries of this theory.

a. *Truth*: Recognizing that truth and error are relative to judgment and are not properties of presentations as such, Sellars states that

trueness as a property of an idea depends upon the content of the idea as agreeing with, and capable of disclosing, the object selected in the act of cognition . . . ; the knower is in error or has the truth when he judges falsely or truly that an idea is true.[38]

Defining a proposition as "a complex idea used in an act of knowing," [39] Sellars states that "a proposition seems to me to be called true when we consider it to give knowledge of its object, to reveal its object." [40] The revelatory nature of our predicates is tested by the consilience of established facts, the logical coherence of ideas, the agreement of investigators, and their utility in guiding and controlling nature.[41]

b. *Categories*:

The categories are cases of general knowledge about nature resting upon the control by nature of the objective data of consciousness, a

[37] *Ibid.*, p. 153.
[38] *Physical Realism*, p. 117.
[39] "Realism, Naturalism, and Humanism," p. 272.
[40] *Ibid.*, p. 272.
[41] *Ibid.*, p. 273.

control actively furthered by the organism.[42] The mind of the organism must produce a pattern in consciousness correspondent to physical reality if it is to further the organism's safety. The result is apparent in what I have called the primary categories, *viz.*, space, time, thinghood, and causality.[43] They (categories) give, as it were, the structure of nature as this is projected into consciousness.[44] These categories are not Kantian *a priori* forms, but are derived from experience in that their apprehension presupposes the empirical presence of categorical meanings in the operative forms of sense-preception and self-awareness.[45]

They are the standard elements and distinctions of conceptual knowledge under which fall all special instances of contentual forms.

c. *Universals*: Sellars regards himself as a nominalistic-conceptualist in the matter of universals. He decisively rejects the "entity-theory" of universals and holds that universals are

concepts held in the act of knowing to reveal the disclosable texture, behavior, and connections of things. In the strict sense, the only universals are concepts. But the controlled correspondence and revelatory capacity of these concepts make it seem *as though* there were universals in nature. What is in nature is that about things which lends itself to disclosure in concepts. In other words, what is in nature is the formal constitution of things.[46] A thing is always a *that-what*. . . . A *that* which is only a *that* is unthinkable, is meaningless . . ., (but) the very mechanism of knowing favors an abstraction of the what from the that; the more readily that several things can be known in terms of the same concept.[47]

A property is intrinsic to and inseparable from the thing. Consequently, it is only in thought that a property can be distinguished apart from the thing. Universals, therefore, are

[43] *Evolutionary Naturalism*, p. 81.
[43] *Ibid.*, p. 80.
[44] *Ibid.*, p. 80.
[45] "Causality and Substance," *The Philosophical Review*, LIII (1943) 8.
[46] *Physical Realism*, p. 168.
[47] *Ibid.*, pp. 161-162.

"meanings in experience connected with the operation of interpretation and associated with symbols." [48] They are operative instruments which result from the interpretation of sense-perceptions and images built around and integrated with symbols. It is the sameness of the symbol which gives the discriminated character an operative freedom, a generality of application. On the part of reality the "ultimate ontological fact is the existence of a multitude of similar substances able to combine in similar patterns and have, in such combinations, similar properties"; [49] on the part of the knowing subject the

> ontological foundation (of universals) is a cerebral pattern which integrates with cognitive responses. . . . Every occurrence of a meaning in an individual's experience is a new event based on the functioning, or activation, of this cerebral pattern. It is because the *enduring* pattern is activated and is expressed in consciousness that the meaning recurs.[50]

In short, universals are logical identities built around symbols which operate in the denoting of things which are similar in nature. They are not entities but simply operational meanings in consciousness.

Cosmology and Ontology

To understand something of the reason for Sellars' position in ontological and cosmological matters, it is important to understand his notions of the nature and scope of philosophy in general. Thus, for him

> philosophy is not a special science with a particular subject-matter as a field for exploitation alongside and coordinate with the subject-matters of other special sciences. . . . It is concerned with the bearing of the results of all the special sciences upon the final question of the general nature and characteristics of the world.[51]

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[48] *Ibid.*, p. 194.
[49] *Ibid.*, p. 175.
[50] *Ibid.*, p. 194.
[51] *Principles and Problems*, pp. 11-12.

He quotes with approval from Sidgwick (*Philosophy, Its Scope and Relations*) the following:

'The important distinction is that the sciences concentrate attention on particular parts or aspects of the knowable world, abstracting from the rest; while it is, in contrast, the essential characteristic of philosophy that it aims at putting together the parts of knowledge thus attained into a systematic whole; so that all the methods of attaining truth may be grasped as parts of one method. . . .' [52]

Although Sellars permits philosophy a certain speculative function in its "aim of securing an interpretation of the nature of the world," [53] it, nevertheless, cannot test its conclusions by any detailed facts of its own finding, but only by the theories and principles put forward by the various sciences. Philosophy is essentially a critical synthesis of the more universal theories advanced by the different sciences.

In the light of this view of the nature of philosophy, which incidentally throws more light on Sellars' theory of knowledge, let us now examine his basic concepts in his interpretation of reality.

a. *Substance and Properties*: Sellars regards substance as

a superordinate category which (finds) implication and expression in subordinate ones such as causality, activity, potentiality, space, and time. In other words, these subordinate categories are adjectival in nature and *expose* the dynamic and structural nature of substance.[54]

Even on the perceptual level of knowing, we achieve the notion of "thinghood" as the reality to which we refer perceptual meanings, and as a conceptual category substance is "but the explication of the category of thinghood." [55] What are the generic elements included in this category? They are "co-reality with the percipient, independence, spatial magnitude and massiveness, high degree of permanence, and possession of

[52] *Ibid.*, p. 12.
[53] *Ibid.*, p. 13.
[54] "Causality and Substance," p. 5.
[55] *Physical Realism*, p. 274.

dynamic capacities." [56] As a good realist, therefore, Sellars defends the category of substance "against both idealist and eventist," and holds to the existence of continuants which are spatial and the locus of events, and which may change and enter into new relations with other continuants. In short, substance is synonymous with "physical system," "being," "existent," "that which is."

> I take the physical world to be another term for being or existence. It is that which exists in its own right, *in se*, that which is denotable and characterizable, that which in some measure endures through change, is the locus of change. The category of substance stands for existence.[57]

Sellars is insistent, however, in repeating that although a substance is disclosable to us in terms of its pattern or structure and mode of behavior, we must never think of these characteristics as superadded entities inhering in an inert substratum. The complexity of characteristics by which we think a particular thing does not require an underlying unifier (as Locke postulated) "because it is not a pluralistic complexity of a logical sort. It is a complexity which corresponds to our idea of system . . . ; the physical thing unifies itself, much as our minds do, through immanent process." [58] Again, "the physical thing itself is a substance in the sense that it is a relatively permanent portion of the world. Its determinate nature is not external to itself in the way of supported qualities but is intrinsic." [59]

> Properties were thought of (in traditional thought) as disconnected entities which needed a transcendental unifier. But a particular substance which becomes the object of knowledge has its nature and inner unity. We must not project into the particular substance the atomistically conceived properties which we have formulated.[60] Properties are at once contents of knowledge and revelations of nature. Nature is

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[56] *Principles and Problems*, p. 254.
[57] *Physical Realism*, p. 285.
[58] *Evolutionary Naturalism*, p. 139.
[59] *Ibid.*, p. 138.
[60] *Ibid.*, p. 141.

such that these predicates hold of it. Things are extended, of certain shape, massive, energy-containing, etc. But such judgments must be removed from any danger of the old substance-qualities schema of interpretation.[61]

This old-fashioned schema is a reflection into the world of the form of judgment with its subject and its predicate. But merely because, knowledge being what it is, we cannot think things except in terms of assigned predicates, we must not change this logical relation into a real relation between a substance and its qualities.

The thing is as it is. It is not a complex of substance and qualities. But we cannot intellectually get nearer to this thing than the *elements of our knowledge*. Because of this situation, we can at one and the same time say that the predicates in terms of which we think are cases of knowledge and comprehensions of the determinate nature of the things.[62]

In short, "the distinction between substance and properties is an epistemological rather than an ontological one." [63] In cognition these properties are the elements of our knowledge of the thing; in the thing they are the complex determinate nature of the thing.

b. *Space*. Space is one of the basic categories in which we comprehend a fundamental characteristic of things. "An object which had no shape, size, or mass and was not assignable to some place would not be what we consider a physical thing." [64] Sellars shows that the category of space, like all other categories, is developed from our perceptual space-experience of things. What does space as a critical category of physical science mean? Not the essence of the physical world, as Descartes thought it to be. This is to confuse physical space with mathematical space. Nor does it stand for the receptacle or container for all matter and energy.

[61] *Ibid.*, p. 141.
[62] *Principles and Problems*, p. 264.
[63] *Evolutionary Naturalism*, p. 140.
[64] *Principles and Problems*, p. 216.

To assert that nature is spatial does not mean that nature is *in* a semi-reality called space nor that abstract mathematical space is an attribute of the physical world but simply that our knowledge involves measurement in terms of real units, that things exclude one another and are ordered internally and externally.[65]

Spatial form is a fundamental characteristic of things, but it is not, as Descartes would have it, their only characteristic.

c. *Time and Change*: Time is the basic category of our knowledge of events. Like space this category is a development of perceptual experience. We are aware of an ordered change in ourselves and our surroundings. This sense of personal time is deepened by memory and expectation whereby the mind can

swing from a remote past to the possible future through an ordered series of events.[66] Gradually, through the use of objective standards, time becomes a measured duration of events. In so becoming, it arrives at the level where it is a category of physical science. As nature is a realm of *events* which are simultaneous, successive and over-lapping, time deals with ordered and precise knowledge of this undeniable characteristic of nature.[67]

We must not forget this objective significance of time and "think of an absolute external time out there which events occupy in some mysterious fashion." [68] "Mathematical time must not be reified any more than mathematical space." [69]

Time, therefore, is that category in terms of which we know change or the relation of events in nature. It represents the dynamic form of the world. Motion is real, but the connecting of the past parts of a motion with the present into a temporal unity is purely the work of the mind. Events in nature

possess relations which are grasped by man and plotted in his thought in terms of past, present, and future and a temporal frame of reference. The present in nature is the processes which are occurring. Instead of nature being in time, time, that is, events or changes, is in nature.[70]

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[65] *Ibid.*, p. 223.
[66] *Ibid.*, p. 235.
[67] *Ibid.*, p. 236.
[68] *Ibid.*, p. 237.
[69] *Ibid.*, p. 237.
[70] *Ibid.*, p. 240.

In reality, therefore,

> time is change in the particular substance or thing. Hence, the particular thing does not combine the past changes with its present condition. There are in physical reality, itself, no *states* of one thing, somehow coexistent though temporally separated. The physical thing is the *resultant* of its history, but it does not attempt to combine its past, as past, with its present. . . . The past does not exist for nature, yet nature *was* as that past tells us. Things have a history, but they are products of that history, not literal possessors of it.[71]

In his treatment of the problem of change, Sellars claims we must acknowledge "continuance as well as occurrence, things as well as events."[72] How must we think of the connection between the successive states of a thing if they are to be the states of one thing? Sellars rejects "the facile answer of the past (which) was to regard these various temporal states as possessed somehow by something above time and change."[73] He believes "that there is an existent which persists, *though not unchanged*, through time. Hence, at intervals in time we can make a *reference* to this existent and assign it different characters. That which persists is the physical existent and not an unchangeable substance."[74] For "since the physical existent changes but is not annihilated, it is permanent. It carries its own continuity by being itself. . . . It is the thing itself which is permanent, and not a hypothetical substance threading states in some mysterious way and giving them unity."[75] Change, therefore, is always a "variation in the constitution of the real. . . . We move not from the past to the present but from the actual to a new actual."[76] Change is "an active process in being which is known in terms of a succession of specific characters put in the time order and referable to the one system. If we are asked *what* changes, we must answer,

[71] *Evolutionary Naturalism*, p. 154.
[72] *Principles and Problems*, p. 232.
[73] *Evolutionary Naturalism*, p. 153.
[74] *Ibid.*, p. 153.
[75] *Ibid.*, p. 154.
[76] *Physical Realism*, p. 334.

'Reality itself in this particular part.' . . ." [77] It is ultimate being or reality itself which changes and to which all temporal events must be referred. A change is simply a shift in the texture or organization in a particular part of reality or existence.

To what extent can a changing physical system be said to retain its identity? Sellars replies that we are justified in calling it the same thing "so long as there is enough contentual identity to satisfy us." [78]

> A thing which changes is no longer the same. When we call it the *same* thing we do so for the sake of classification. It has not changed enough to fall into another of our very inclusive classes which admit differences so long as there are common features. It is only after it has changed a great deal that we may say it is no longer the same (sort of) thing.[79]

Again,

> a thing cannot change and not be different in this feature or that, in its size, color, shape, chemical constitution, properties. But while it is different in some of its characteristics, it is yet the same thing. What do we mean in the second sense? *Surely that we believe that there is a continuity of substance and history which justifies a common reference.* It is the same object of our thought and the same persistent thing which has changed.[80]

In connection with his discussion of time and change, Sellars investigates the problem of the temporal infinity of the universe. In the light of his notion of time as simply the order of events, he decides that there is no need to think of an absolute first event. Since time is in the universe as one of its essential characteristics, an infinite regress of events in a temporal order is quite thinkable. "Every event had its antecedent. We have here an *order* in terms of which we think the events which occur in the universe. Why should we want a first event?" [81] The

[77] *Evolutionary Naturalism*, p. 160.
[78] *Ibid.*, p. 154.
[79] *Ibid.*, p. 155.
[80] *Principles and Problems*, p. 243.
[81] *Ibid.*, p. 242.

eternity of the world, of course, is equally thinkable, especially since "the empirical data are entirely in favor of conservation as a characteristic of the energy-content of reality." [82]

From his conclusion that the world is without either a beginning or an end in time, Sellars reasons further "that there is no good reason to think of the physical universe as contingent, or dependent, being as the scholastics and theologians have judged it to be." [83] Since an infinite regress of events is quite thinkable, there is no need to postulate the existence of a First Cause beyond the universe which produced and sustains it.

> If time is ultimately an expression of the dynamic nature of being and the corresponding fact of change, or shift in relations, then an eternal universe would simply be a substantial universe whose activity did not exhaust it. . . . Existence does not destroy itself but only its patterns. We who are secondary continuants find it hard to realize this characteristic of primary being . . . (but) reason must think in terms of its categories and finds itself unable to believe in substance apart from intrinsic eternity. Out of non-being being could not arise. And, since change is always a change of organization, it cannot destroy being. Reason concludes that existence is self-perpetuating or indestructible. Only secondary continuants are created and destroyed.[84]

In short, "why should God be eternal if physical existence is not? Why appeal from the known to the unknown?" [85]

Sellars concludes that we must simply accept the universe as that which exists.

> The ultimate mystery, if you will, is that there is any universe at all. There is nothing irrational about the fact that there is, and the real employment of the intellect presupposes existence. Philosophy, like science, can but accept the fact of existence.[86]

Accordingly,

> it is the task of the understanding to grasp the characteristics of what is; and, in default of a guaranteed revelation, that is, a revelation which

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[82] *Ibid.*, p. 243.
[83] *Ibid.*, p. 242.
[84] *Physical Realism*, p. 368.
[85] *Ibid.*, p. 368.
[86] *Ibid.*, p. 370.

satisfies reason of its authenticity, the best we can do is to investigate the universe by means of science and philosophy.[87]

d. *Causality*: Sellars points out that "causality is a relational category which grows up in unison with the category of thinghood. It is for this reason that it fits in with substance, space, time and force." [88] Causality is one of the essential meanings involved in the

> superordinate category of substance, and it arises originally when from kinaesthetic sensations and feelings we become aware of the self as active. If we forget this mutual involvement of causality and substance, substance becomes inert, merely linguistic, and mythological, a parody for positivists to scorn.[89]

From this personal experience of effective agency on the part of ourselves "we are convinced that processes 'out there' are rooted in something massive and efficient," [90] and we recognize that "reality is active in the sense that things get done, that unions are formed, that new properties arise. Matter is no longer thought of as the passive potentiality of Aristotle which receives but does not control." [91]

We cannot, of course, directly apprehend this dynamic force of substance. "Of this dynamic agency we can, as Hume pointed out, gain no intuition. Our knowledge is essentially descriptive and cannot, from its nature, setting, and material, introduce us into the mills of physical reality." [92] Again,

> we are confined to the course of events as these reveal themselves to us in our sense-perceptions; and . . . it goes without saying that we cannot penetrate to the springs of change in nature itself, nor, if we could, would we likely be confronted by a productive force spinning out changes from itself. The whole idea of productive power rests probably,

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[87] *Principles and Problems*, p. 242.
[88] *Physical Realism*, p. 378.
[89] "Causality and Substance," p. 15.
[90] *Evolutionary Naturalism*, p. 232.
[91] *Ibid.*, pp. 234, 235.
[92] *Ibid.*, p. 232.

as Hume saw, upon a misrepresentation of the kinaesthetic sensations. It is a vague projection of our sense of effort while overcoming obstacles.[93]

Although we cannot intuit the nature of causal force, we can observe the routine of nature and through induction "penetrate to what are commonly called laws in nature, that is, to necessary connections which are numerically repeated."[94] "We can see no rational necessity which enables us to deduce the effect from the cause,"[95] but from experience we can "get a definite clue to an executive relation between them."[96] Our causal laws, therefore, "merely express implications corresponding to the executive capacity of things of a determinate kind. In any actual process we have something of the nature of self-expression. What happens is a function of the existential nature of the factors involved."[97] In other words, although we cannot *a priori* deduce types of action from known constitutions, we do discover that things act in accordance with their known constitutions, and we can reason by analogy from given instances to like instances that we expect to be repeated.

If changes are rooted in the nature of the system in the process of change, the end-term is the inevitable expression of the particular process. But, if so, the law of the change is simply the formulation of the changes in their actual order as they appear to us and are actually known. . . . We are spectators who have had our cue but we do not interfere with, or control, a process of real change which marches step by step according to its own inner necessity, a necessity which is a self-determination.[98]

Causal capacity is a function of organization, but

an effect is brought about not by the sole 'power' of one agent but by a process of interaction between, and within, things. The nature of the patient is just as important as the action of the agent. . . . The cause

[93] *Ibid.*, pp. 244, 245.
[94] *Physical Realism*, p. 371.
[95] *Ibid.*, p. 381.
[96] *Ibid.*, p. 376.
[97] *Ibid.*, p. 393
[98] *Evolutionary Naturalism*, pp. 250-251.

can no longer be conceived as an agent which *does* a particular something to that which it externally acts upon. All changes are seen to occur within a system of things and to be controlled by the nature of that system. The falling of a tree, for instance, is not its 'act' but the expression of the whole gravitational system of tree and earth.[99]

Reminding us that knowledge is a comprehension of reality and not identical with reality, Sellars emphasizes the subjective character of laws.

In this way he [the critical realist] is able to avoid that reification of laws and essences to which the scholastic realist fell victim. Laws are not in nature, nor do they control nature. The status of propositions is subjective. If there is an invariant character and an orderliness in nature a study of the data will reveal it. But we need no assumption of ghostly laws regnant over the physical realm.[100]

Are causal laws explanatory of nature? Sellars repeatedly upholds empiricism as the only valid approach to the truths of reality. In observation, experimentation and the inductive process which follows them we are concerned with the real employment of the intellect. Deduction, on the other hand, is concerned with reasoning purely as an inter-propositional affair; "it does not ask itself whether existence corresponds to these implications (of propositions) and whether these meanings are exhibited (in reality)." Empiricism, however, is not confined only to a mere description and summary of events, but is explanatory knowledge.

To connect a property with the particular organization of a thing is to explain it. To show how one organization passes into another is to explain it. All scientific explanation, so far as I can see, is the gaining of insight into the structure, relations, and operations of nature so that particular events can be interpreted. Explanation is knowledge and cannot demand more than knowledge can give.[102]

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[99] *Ibid.*, p. 253.
[100] *Ibid.*, p. 262.
[101] *Physical Realism*, p. 371.
[102] "Realism, Naturalism, and Humanism," p. 277.

In the light of our account of these fundamental categories, let us examine the general features of Sellars' philosophy of nature. "Reformed Materialism," "Evolutionary Naturalism," are the names most commonly used by Sellars to designate his philosophic system. Each of these terms indicates a quality differentiating it from other varieties of materialism and realism. Thus, Sellars, like most contemporary naturalists, insists that naturalism is a "reformed" materialism, meaning that it has risen above the old dead-level, reductive materialism with its strictly mechanical view of all physical processes and its attempt to "bully mind and consciousness into the framework" of inert atoms in motion. The new naturalism is evolutionary in that it takes time and change seriously. This means that it holds to the emergence of new physical systems with new properties and new executive capacities. Matter is no longer conceived as a disorganized aggregate of inert, passive particles, but as dynamic, active, and capable, with varying conditions, of an indefinite variety of organizations and patterned structures. "It is a materialism, or physicalism of evolved unities and patterns." [103] Finally, the philosophy of Sellars is a physical realism, that is,

> it takes the common world, in which we find ourselves immersed, as the real and only world; and it is skeptical of those religious and philosophical traditions which want to reduce it to illusion or to dependence upon something more real back of it all in some mysterious manner.[104]

That which is physical is real and that which is real is physical. "Back of pomp and circumstance, back of love and beauty and tragedy and happiness, lies—matter. In short, the physical is but another term for *being*, for existence." [105]

In expounding his version of naturalism, Sellars frequently uses the traditional varieties of materialism, spiritualism, and dualism as contrasting backgrounds to bring his own system into

[103] *Physical Realism*, p. 4. [104] *Ibid.*, p. 12. [105] *Ibid.*, p. 6.

relief, maintaining that modern naturalism overcomes their contradictions by being a synthesis of their partial truths. As we have seen, he is of the opinion that philosophy is entirely dependent upon the empirical sciences for its data, and that accordingly its progress is conditioned and measured by the corresponding degree of progress in scientific knowledge. Since the older systems of philosophy necessarily had to work with a much more imperfect and incomplete fund of scientific data than is available today, these systems were necessarily imperfect and even false when viewed in the light of the more complete scientific knowledge that we have today. The philosophical errors of the past were practically inevitable in view of the undeveloped state of science.

When we grasp the correlation between philosophy and science, therefore, we can understand the shortcomings, for example, of the old materialism. Taking the then current scientific view of matter as consisting merely of small solid particles which impinged upon one another in a purely mechanical way to be a literal insight into the very stuff of reality (an epistemological error), the old materialism wrongly tried to explain even mind and consciousness in terms of the movement of these particles. This same notion of matter as a passive, inert stuff, together with another false epistemological position, led to the opposite monistic doctrine of spiritualism. For, since reality must be active, matter, as something passive, could not be real, but must be merely an appearance relative to active mind, either individual or absolute. Finally, this same naive notion of matter, likewise coupled with a faulty epistemology, was the source of the doctrines of dualism. The dualist, impressed by the contrariety between matter as passive quantity and mind as qualitatively active, regarded each one as irreducible to the other. Unwilling to deny the reality of either, he brought them together in an awkward and inexplicable union, a union in terms of which the mind-body problem is insoluble.

At the root of all the vagaries of these older philosophic systems, therefore, was a false epistemology which identified the content of knowledge with its object and thereby gave rise to the mistaken notion that the contentual characters of inertness and "brickbatness" were insights into the very nature of matter. The proper solution of basic problems became possible only after the new physics and the biological and psychological sciences had furnished philosophy with the data necessary for it to correct its epistemology and to revise its notion of matter.

It is the biological and psychological sciences which have taught us to realize the significance of *organization* and *change* in nature. Physical systems respond as wholes, and the nature of this response is a function of the kind of organization achieved. Physical systems are actual unities and wholes, and not, as in the old mechanism, merely a constellation of the movements of their parts. Further, "if we take organization seriously, we must accept the rise in nature of *natural kinds* with specific properties expressive of the system. From this it would follow that we must expect novelty and origination in nature and what may be called levels of causality." [106] Matter, in short, "is a far more active, subtle, and responsive stuff than the brickbat atomism of the past supposed. It lends itself to mobile integrations which under the hand of time may lead to tremendous novelties." [107]

Sellars describes the theory of emergent evolution as "the assumption that there is novelty or origination in the world, that there has often been something new under the sun, including . . . the sun itself." [108] Here is the historical perspective of such an hypothesis:

A process of creative organization led at each stage (in the pyramid of nature) to the advent of gradients or levels above. Each new level

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[106] "Realism, Naturalism, and Humanism," p. 275.
[107] *Evolutionary Naturalism*, p. 263.
[108] *Principles and Problems*, p. 362.

depended upon the energies and conditions of the lower level and was adjusted to the wide-spreading foundation. Matter, itself, was evolved (!) Then came the earth with its waters, its salts and fertile earth and, giving it radiant energy, the sun. Then little by little came life reaching upward to more complex forms. . . . The life lifted to mind, the human mind being the latest and highest to appear. . . . Something of this sort seems to be the unavoidable reading of the facts which science has collected. . . . In this regard, evolution offers us the spectacle of the differentiation of nature through its temporal dimension. And this temporal differentiation is spread out in space in the variety of co-existing kinds of realities.[109]

Again,

it seems clear empirically that conditions on the planet have temporarily, at least, been favorable to a process of cumulative change leading from units of a lower to units of a higher order. The word higher is purely logical in this connection and not valuative. I mean that the higher order implies and includes the lower order. The molecule includes the atom; the colloidal substance includes the molecule; the cell includes the colloidal substance; and the organism includes cells and organs.[110]

There are in the universe, therefore, a hierarchy of behaviors reaching from the simple and more general to the complex and more specialized. Chemical laws are not deducible from the laws of chemistry.

The laws of nature form a hierarchy in which the different levels are discontinuous. This logical, or deductive, discontinuity, does not at all conflict with the genetic continuity or orders of things in nature. But it does mean that there are 'junctures' in nature at which critical arrangements occur with the origination of novel properties. Genetic continuity is not smooth but mutative, as it were.[111]

In other words, matter is not an inert stuff, but is creatively active and capable of forming, under favorable conditions, new physical systems with new properties and modes of behavior.

[109] *Ibid.*, pp. 363, 364.
[110] *Evolutionary Naturalism*, p. 261.
[111] *Principles and Problems*, pp. 364-365.

Does this emergence of new wholes involve discontinuity? "If we mean by discontinuity novelty, yes. But if this novelty grows necessarily out of the situation, is there not also the essential of continuity?" [112] For,

> continuity can demand only genetic relationship, the absence of causal breaks. It has no right to go further and assert complete logical identity of the sort that comes out in the formerly popular postulate that the effect must be like the cause. As a matter of fact, the effect should not be like the cause, although it should be relevant to it.[113]

Thus, life as a cumulative end-term of a long series of changes could have arisen from material which could be characterized as non-living. Colloidal chemistry has made the conception of abiogenesis less repugnant by indicating the possibility of levels of life much lower than the microscope can reveal and which could well be the connecting links between non-living matter and life as we know it.

Even when confronted with the formidable task of explaining mind and consciousness, Sellars defends his materialism in opposition to both spiritualism and dualism. He is convinced that the traditional mind-body problem was always a false problem, and now is "simply being outgrown by the vanishing of old traditions and assumptions. The disappearance of reductive materialism, the growth of behaviorism, the arrival of a clearer realistic epistemology are all factors." [114] Now that we have discarded the old-fashioned notion of matter as an inert, homogeneous, solid stuff, in favor of one which recognizes its active capacities for organization and synthesis, and remember that knowledge can never penetrate to the intrinsic nature of matter, there is no longer any justification for regarding mind and matter as two separate entities.

Sellars calls his treatment of the mind-body problem the

[112] *Evolutionary Naturalism*, p. 285.
[113] Ibid., p. 284.
[114] "Realism, Naturalism, and Humanism," p. 278.

"double-knowledge and emergence" solution, and admits that it is a critical version of the traditional double-aspect theory. In keeping with modern psychology, Sellars maintains that we must not think of mind as a substance, but as a

> term for systematic tendencies and operations which have slowly come to pass in the organic world. It is a term covering memory, habit, association, reasoning, attention. It is a term for functions. . . . It stands for motor-sets and action patterns, for cumulation and organization, for instinct and for learning by experience.[115]

In short, it is the brain in its organic setting of muscle and gland. "If, then, we use mind as a physical category, we should mean by it the nervous processes which find expression in intelligent conduct. The mind is the brain as known in its functioning. It is the brain in its integrative capacities. . . ." [116]

> We conceive mind as an activity and believe that it is to be assigned to the complex neural process which mediates behavior. . . . Corresponding to association is the connection of the neuronic groups; corresponding to the compresence of sense-data and images in perception is the cofunctioning of various subsystems. Corresponding to meanings is some sort of summation.[117]

What, then, is consciousness? Here again, "we must avoid the traditions of dualism and refuse to consider it an immaterial kind of stuff. It would seem to be better conceived as a qualitative web of events intrinsic to the operations of the brain-mind." [118] "We must bring consciousness under the category of *event*. . . . What we call consciousness is a patterned complex of events intrinsic to the functioning of the brain-mind." [119] It is a qualitative dimension of the functioning brain-mind system.

[115] *Principles and Problems*, p. 322.
[116] *Evolutionary Naturalism*, p. 300.
[117] *Ibid.*, p. 308.
[118] "Realism, Naturalism, and Humanism," p. 279
[119] *Principles and Problems*, p. 322.

Why have traditional dualists regarded consciousness as something distinct and different from the material organism? Because they thought that the two kinds of knowledge which we have of the brain referred to two different entities. There are really not two things, but simply two kinds of knowledge of the same thing. Objective psychology gives us an external knowledge of the brain. Like our knowledge of any other external physical system this knowledge gives us a comprehension of the quantity, structure, and action-patterns of the brain, but, as critical realism has shown, this scientific knowledge can never be an intuition of the very content of that being.

> Scientific knowledge, while a disclosure of pattern in an abstracted reproductive fashion, never samples physical existence in the sense of *participating* in it. In such knowledge, genuine as it is, we are never literally on the inside of external objects intuiting, or experiencing, their particular 'go,' their life and substantial being.[120]

In self-knowledge or consciousness, on the other hand, we are in the unique position of literally being on the inside of and experiencing the particular "go" of a physical system, namely, the brain. "In consciousness each of us is on the inside of his own brain, . . . ; his consciousness is a factor intrinsic to cortical processes justifying us in speaking of them as conscious processes." Because of the uniqueness of the situation, namely, that of being "immersed in being," "it is not strange . . . that we find it difficult to think consciousness correctly and to put it in its proper context and relations." [122] The dualist is so impressed by the great difference between the *quantitative* nature of the brain as revealed in external knowledge and the *qualitative* nature of the inner content of the functioning brain as given in consciousness, that he mistakenly thinks he is witnessing two

[120] "An Analytic Approach to the Mind-Body Problem," *The Philosophical Review*, LVII (1938) 471-472.
[121] *Ibid.*, p. 472.
[122] *Principles and Problems*, p. 341.

different things instead of the "inner" and "outer" aspect of the same thing. The critical realist, on the other hand, maintains that we must simply develop a new category so as to "enlarge our conception of a cerebral state over that which physiology gives," [123] and recognize that consciousness is the inner qualitative content of that physical reality called the brain. "What we must do is to deepen our conception of the brain as at once activity and content. It is sensori-motor, ideo-motor; it is a stream of tendencies lit up by consciousness." [124] Finally, "it is just because consciousness is not a second substance outside the brain but a variant within it that it can act as the focus and instrument of functional adjustment. . . . Consciousness is, as it were, the eye of the brain." [125]

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(*To be concluded*).

[123] *Physical Realism*, p. 421.
[124] *Evolutionary Naturalism*, p. 316.
[125] *Ibid.*, p. 313.

A Triangle of Opposites for Types of Propositions in Aristotelian Logic

by Paul Jacoby

IT IS CUSTOMARY in every introductory account of traditional logic to include the familiar device known as the "Square of Opposition." But modern logicians, who have been influenced considerably by developments in the field of mathematical or symbolic logic, are prone to omit the reference to different kinds of "opposites," even in their more general treatises on logic, although they seem willing enough to admit the validity, if not the primacy, of the principle of contradiction. Perhaps this difference is very significant in view of the underlying epistemological assumptions of the Aristotelian and his modern antagonist. For, in spite of the avowed intention of the contemporary logician, it appears that he can never free himself completely from his position on the problem of the *universal.* Certainly no good Aristotelian—nor any Thomist, for that matter—would think of doing so.

The purpose here is not to criticize the epistemological or metaphysical theory of anyone who has written in or about the science of logic, but to point out certain shortcomings and confusions that are inherent in the so-called "Square of Opposition" as it has been traditionally presented in textbooks and in the classroom. A triangular device has been developed to replace—in a certain sense to assimilate—the "square" which does not occur in Aristotle's *Organon,* and which does not adequately summarize the results of The Philosopher's analysis. This "triangle" will be presented in several steps throughout this paper, following the dialectic and discussion in chapters four to thirteen, inclusive, of the *De Interpretatione.*

An analogous triangular scheme has been worked out for the

various "operations" or connectives of the modern calculus of propositions, and will be presented in a later paper. It is hoped that such a procedure may help to establish some common ground as the general framework for critical discussion of both Aristotelian and symbolic logic, and eventually lead to a complete evaluation of fundamental points of similarity as well as difference. One such difference seems to be the central role of the principle of contrariety in the entire philosophy, as well as logic, of Aristotle, and its neglect by the moderns.

Aristotle would approve of a good diagram for expressing the different types of "opposite" propositions. A geometrical representation of the relations of certain pairs of such propositions is given or implied in chapter ten of the *De Interpretatione* and in the last chapter of the first book of the *Analytica Priora.*[1] But the diagrams are not explicitly worked out in these passages where reference is made primarily to pairs of contradictories, secondarily to contraries. Both contradictory propositions and contrary propositions are instances of positive and negative statements. "Positive" and "negative" are contrary notions, and "it seems that in defining contraries of every kind men have recourse to a spatial metaphor, for they say that those things are contraries which, within the same class, are separated *by the greatest possible distance.*"[2] It is proposed, therefore, to show the opposition between any two *affirmative* and *negative propositions that have the same subject and predicate*, by means of a simple device, the straight line. The *termini* of every such line in the diagram will indicate propositions that differ from each other according to the kind of opposition represented by the relative position of that particular line. Actual propositions

[1] *De Interpretatione*, 19b 24-20a 1; *Analytica Priora*, 51b 36-52a 17. All citations of Aristotle in this article follow the translations in *The Works of Aristotle Translated into English*, ed. W. Ross (Oxford 1910-31), I-VIII.
[2] *Categoriae*, 6a 15-18.

are represented by the logician in and by means of such a diagram, but from the point of view of their *form*.[3]

At the beginning of the *De Interpretatione* there is an emphasis on language and those elements of language which are symbols of thought or mental experience, after which Aristotle undertakes to analyze and order the various types of propositions—such sentences "as have in them either truth or falsity."[4] The climactic point in his dialectic is reached in chapters twelve and thirteen where he studies the opposition of modal propositions. Thus within the space of not more than ten short chapters of a single treatise is to be found the basic outline of the Aristotelian theory of propositions, and on the basis of the principal texts here and in closely related passages of other works, an attempt has been made to develop an adequate diagram for the different kinds of opposition between propositions.

The danger of misinterpretation is ever present where one tries to give an account of Aristotelian logic in complete separation from Aristotle's metaphysical theory. Already there is the problem of the relation between a doctrine of logical opposition which pertains to propositions and the metaphysical theory of opposition. Texts for the opposition of propositions occur in different books of the *Organon* and elsewhere in the Aristotelian *corpus*. A primary text for the metaphysical view of four kinds of opposition (relation, contrariety, privation, and contradiction) is chapter ten of the *Categoriae*.[5] To provide a general framework for the special problem of this paper, the following summary is given of several pertinent points.

Of the four meanings of "opposite," *contradiction* is restricted to *propositions* in which there is a definite combination

[3] *Ibid.*, 12b 6-15. "Facts" are referred to here as the *matter* of the affirmation or denial.

[4] *De Interpret.*, 17a 2-4.

[5] *Categoriae*, 11b 16-13b 35.

of words to signify what is or what is not. Although only propositions can be contradictory, it is not necessary for every pair of positive and negative propositions that have the same subject and predicate to be related as simple *affirmation* and simple *denial.* They may be opposed as *contraries,* or again as the contradictories of two contraries.

"Positive" and "negative" are contrary notions. They are predicable of "subjects" which are propositions. Therefore one can divide propositions according to quality into positive and negative. "Truth" and "falsity," on the other hand, are "things" which are *present in* propositions.[6] Now a proposition affirms or denies something of a subject. The affirmation will be a positive proposition, the denial a negative proposition. Where the *same predicate* (a universal) is simply affirmed of an individual in one proposition, and simply denied of the *same individual subject* in another proposition, it is necessary for the one opposite to be true and the other false. Such an opposition of propositions is a relation of *contradiction.* One member of such a pair must be true, the other false. Even if the subject of the proposition is non-existent, to deny any attribute of it would entail a negative proposition that is true. The contradictory, affirmative proposition in such a case would be false.[7]

The subject that is a universal is actually one and potentially many.[8] Affirmative and negative propositions of universal character with respect to a universal are designated *contrary propositions.*[9] Why? They are not related to one another as simple

[6] According to St. Thomas, "truth" is the conformity of intellect and thing, and resides in the intellect composing and dividing. Cf. *Summa Theol.*, I, q. 16, a. 2. This judgment is *expressed by* a proposition.

[7] The following example is given by Aristotle. ". . . if Socrates exists, one of the two propositions 'Socrates is ill,' 'Socrates is not ill,' is true, and the other false. This is likewise the case if he does not exist; for if he does not exist, to say that he is ill is false, to say that he is not ill is true. . . ."—*Categoriae,* 13b 29-32.

[8] ". . . unity and plurality are the starting points of all contraries."—*Metaphysica,* 1005a 4.

[9] "By the expression 'a proposition of universal character with regard

affirmation and simple denial. There is no necessity, from the standpoint of form alone, that one be true and the other false, but it is possible that both contrary (positive and negative) propositions be false. The root of this possibility is to be found in the contingent matter of the many individual subjects: neither their *being* nor their *non-being* is a necessary logical subject of the predicate attribute. Thus contrary propositions—like many other contraries—admit of an intermediate.[10]

Every contrariety involves as one of its terms a privation.[11] Privation is a kind of contradiction. The *truth* of a proposition necessarily involves the impossibility of its simultaneous falsity —for what necessarily is cannot not be. Thus contraries cannot be true together, for if they were both true then both being and non-being would be predicated of the same subject. The following is given as the reason why there cannot be an intermediate between *contradictory* propositions:

> . . . of one subject we must either affirm or deny any one predicate. This is clear, in the first place, if we define what the true and the false are. To say of what is that it is not, or of what is not that it is, is false, while to say of what is that it is, and of what is not that it is not, is true; so that he who says of anything that it is, or that it is not, will say either what is true or what is false.[12]

Noticeable in all such texts is the " present in " and " predicable of " terminology of the second chapter of the *Categoriae*.[13] A similar emphasis occurs in Aristotle's famous statement of the principle of contradiction in the third chapter of book

to a universal,' such propositions as 'every man is white,' 'no man is white' are meant."—*De Interpret.*, 17b 5-6. Aristotle remarks that " the word 'every' does not make the subject a universal, but rather gives the proposition a universal character."—*Ibid.*, 17b 12-13.

[10] Cf. *Categoriae*, 12a 4-10 for examples of contraries which have *no* intermediate. Obviously " truth " and " falsity " likewise fall in this class.

[11] Cf. *Metaphysica*, 1055a 33-1055b 29.

[12] *Metaphysica*, 1011b 24-28.

[13] Cf. *Categoriae*, 1a 16-1b 9.

'gamma' of the *Metaphysica*: ". . . the same attribute cannot at the same time belong and not belong to the same subject and in the same respect." [14] One must never lose sight of the primacy of this principle in the logical order, nor of its ontological tie with and foundation in ultimate reality. To fail in this respect almost inevitably leads to an erroneous judgment as to the role of opposition theory in Aristotelian demonstration. A formal treatment of such questions, however, is beyond the scope of the present study.

The project before us is finding a satisfactory basis for the schematic representation of contrary and contradictory propositions that have the same subject and predicate.[15] Each pair will consist of a positive and a negative. However, a problem arises here as to whether each pair is made up of *simple* propositions. Now a simple proposition is "a statement, with meaning, as to the presence of something in a subject or its absence, in the present, past, or future, according to the divisions of time," [16] whereas the composite proposition is compounded of simple propositions. The things which are the subjects of propositions are either universal or individual.[17] Positive and negative propositions that predicate the same attribute of an individual subject are contradictory. There can be no contrary propositions with respect to such a subject, and therefore our problem of a suitable scheme for opposite propositions reduces to that of the proper classification of propositions that have a universal as subject. The traditional "square of opposition"

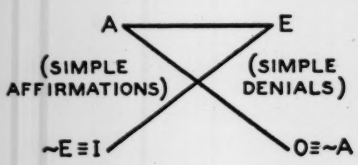
[14] *Metaphysica*, 1005b 18-20.

[15] The traditional "sub-contraries" and "subalterns" are mentioned only implicitly in the logical treatises of Aristotle. The former are referred to as contradictories of the contraries in *De Interpretatione*, 20a 18. Cf. *Analytica Priora*, 51b 36-52a 14.

[16] *De Interpretatione*, 17a 23-25.

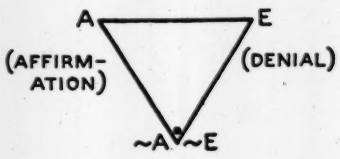
[17] "By the term 'universal' I mean that which is of such a nature as to be predicated of many subjects, by 'individual' that which is not thus predicated. Thus 'an' is a universal, 'Callias' is an individual."—*De Interpretatione*, 17a 37-40.

divides propositions according to quantity as well as quality. To determine whether such a division and scheme are adequate, it is important to know first whether both universal and particular propositions are *simple* propositions. In other words, do the four traditional types (A, E, I, O) exhaust the class of categorical propositions? If so, are composite types as well as simple propositions included in the division? And if it turns out, as suspected, that only the latter kind is considered, is there any reason why logically opposed composites should not be covered also by the same scheme? Diagrams (a) and (b) are preliminary attempts to summarize the problem and suggest a possible solution.



Four Types of Simple Proposition

(a)



"Neither A nor E"
(Joint Affirmation-Denial : I and O)

(b)

It will be noted that a similar place has been assigned to the contraries, A and E, in both (a) and (b). The reference to both A and I in (a) as "affirmations," and consistency in the use of the straight line to connect a *positive* and a *negative,* would require the two places on the negative or right-hand side of the diagram to bear negative symbols (~ I for the denial of I, and ~ A for the denial of A) [18] at top and bottom, respectively. However, there is some advantage in keeping the traditional notation in (a) for the four propositions customarily

[18] The tilde "~" is a convention used in symbolic logic as a sign of negation. The sign "≡" has the meaning "equivalent to." The dot "•" indicates a conjunction of two propositions.

represented at the different corners of a square.[19] Such a diagram does oppose each type of universal proposition (A, E) to its contrary (the other universal proposition of opposite quality) and also to its contradictory (a proposition differing in both quality and quantity), but does not provide for a composite proposition as well as does the triangle in (b). This latter form illustrates clearly all three mutually-exclusive possibilities of a true proposition, simple or composite, but does not show the opposition of contradictories. It would appear, therefore, that neither of the two diagrams by itself is sufficient to fully summarize all oppositions that involve the A and E propositions. Is there any evidence in the Aristotelian texts to dispose the reader in favor of one rather than the other? Or does the answer lie in some combination of (a) and (b)? To help us decide we now consider a related question.

It is sometimes claimed that in the Aristotelian theory "some" means "some only."[20] Usually, however, traditional logic takes "some" in the sense of "at least some."[21] According to the former interpretation, an attribute is referred to "some but not all" of a certain class. Obviously this entails a composite proposition that can be expressed as a joint affirmation-denial: "Some S is (are) not P." On the other hand, the meaning "at least some" includes the possibility of the attribute being present in or predicable of all individuals of which the subject of the "particular" proposition is predicable, so that this expression means "one or more . . . and possibly all . . ." logical inferiors of the universal subject (S) have the

[19] The simple diagram (a) emphasizes the important logical relations between the contraries and their contradictories, but does not graphically represent the difference in the laws themselves. Such an "incomplete square" is given by E. M. Edghill (*The Works of Aristotle Translated into English*, *op. cit.*, I "De Interpretatione," 17b 20) in a footnote.

[20] Cf. J. Dewey, *Logic: The Theory of Inquiry* (New York, 1938), p. 182.

[21] M. Cohen and E. Nagel, *An Introduction to Logic and Scientific Method* (New York, 1936), p. 35. P. Coffey, *The Science of Logic* (New York, 1938), I, 194-195; et al.

attribute which is represented by the predicate-term (P). (This indefinite agreement or "composition" of S and P is conventionally signified "I" or "SiP.") But is would seem that this likewise means a type of composite or copulative proposition; for, if the universal proposition is a simple affirmation or a simple denial, then the contradictory proposition (the particular I which is a simple denial of the E, or the particular O which is a simple denial of the A) will be composite rather then simple, since it means "Some only *or* all. . . ." If Aristotle had been confronted with such a dilemma, it is not likely that he would have considered a pair of contradictories to consist of simple propositions. Yet he clearly states that "the first class of simple propositions is the simple affirmation, the next, the simple denial; all others are only one by conjunction." [22]

Perhaps in the final analysis this problem as to the meaning of "some" is a fictitious one from an Aristotelian viewpoint, for the reason that particular propositions are taken as the contradictories of universal propositions and vice versa. Every contradictory, whether particular or universal type in the traditional sense, is, like its opposite proposition, a simple affirmation or denial of fact. The fact [23] expressed positively or negatively in one proposition is contradicted of that same subject in the opposite proposition. Not only must these opposite affirmations and denials have the same subject and predicate, but "the identity of subject and of predicate must not be 'equivocal.'" [24] The reason for much misunderstanding about this matter is the failure of Dewey and other contemporary authors to give sufficient attention to the *universal subject* in each of the traditional four types of "simple proposition" (or the "composites") symbolized in (a) and (b) above. Not only is the subject

[22] *De Interpretatione*, 17a 8-9.

[23] "Fact" is here taken as the connection of thing and attribute. Cf. *Analytica Posteriora*, I, 75a 16, for distinction between "fact" and "reasoned fact."

[24] *De Interpret.*, 17a 31-35.

of each such proposition a universal, but it is *the same universal for each opposed proposition.* Throughout chapter seven of the *De Interpretatione* Aristotle insists on the interpretation of opposites in terms of the universal or non-universal character of the proposition that affirms or denies something of the same subject.

> . . . the denial must deny just that which the affirmation affirms concerning the same subject, and must correspond with the affirmation both in the universal or particular character of the subject and in the distributed or undistributed sense in which it is understood.[25]

Examples of both singular and general propositions, with individual and universal subjects respectively, are given in the context of the above statement; but we have pointed out earlier that the former type of proposition, lacking a contrary, is not of interest to us here. Chapter seven begins with the distinction between individual and universal subject, and since the division is obviously dichotomous, a *particular* proposition (which should not be interpreted as an explicit assertion about one or several individuals) must be a denial of the definite connection of thing and attribute (their composition or division in thought) expressed by the universal proposition with respect to a universal subject.[26] Thus a truly Aristotelian interpretation of any of the four types, separately or in some compatible combination, as "$\sim$A·$\sim$E" in (b), must regard such a proposition as a statement formally made with respect to a universal, and *only virtually* with respect to the logically-inferior *individuals.*

Logical analysis cannot stop with an account of both grammatical and logical form, but seeks a final synthesis in terms of the laws and principles of correct thinking. The following two

[25] *De Interpretatione,* 17b 39-18a 1.

[26] Cf. *ibid.,* 17b 10, for the so-called "indefinite proposition" (e. g. "man is white," "man is not white"). Such positive and negative forms likewise are to be excluded from the scheme for the opposition of universal and particular propositions.

texts are important at this stage of our search for a satisfactory scheme of logical opposition.

(1) An affirmation is opposed to a denial in the sense which I denote by the term 'contradictory,' when, while the subject remains the same, the affirmation is of universal character and the denial is not. . . . But propositions are opposed as contraries when both the affirmation and the denial are universal, as in the sentences 'every man is white,' 'no man is white.' . . .

We see that in a pair of this sort both propositions cannot be true, but *the contradictories of a pair of contraries can sometimes both be true with reference to the same subject*; for instance 'not every man is white' and 'some men are white' are both true. . . .[27]

(2) . . . Verbally four kinds of opposition are possible, viz. universal affirmative to universal negative, universal affirmative to particular negative, particular affirmative to universal negative, and particular affirmative to particular negative: but *really there are only three:* for *the particular affirmative is only verbally opposed to the particular negative.* [Italics mine.] Of the genuine opposites I call those which are universal *contraries*, the universal affirmative and the universal negative, e. g. 'every science is good,' 'no science is good'; the others I call *contradictories.*[28]

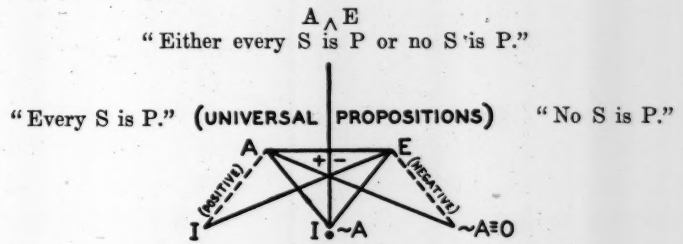
While the first paragraph of text (1) strongly implies some diagram like (a), the underscored portions of the very next paragraph and also of text (2) show the need for further synthesis. This problem is raised by the principle of contrariety. Thus, if one emphasizes the possibility of neither contrary being true (i. e. both A and E false) in a given case (Aristotle repeatedly refers to such examples),[29] diagram (b) seems to emphasize more fittingly this as well as the other two possibili-

[27] *De Interpret.*, 17b 16-26. (Italics mine.)

[28] *Analytica Priora*, II, 63b 23-30.

[29] As noted earlier in this paper, contraries of their very nature admit of an intermediate. Such a point is discussed again at the end of the first book of the *Analytica Priora*.

ties. For A is either true or false. If A is false, then—from the standpoint of forms alone—there is a possibility, but only a possibility, that E is true. Of course E must be either true or false. And, in the event that both A and E are false, there would be a realization of the intermediate between the two contraries, viz. the joint truth of their contradictories. The middle position of this latter possibility is represented in (b) and in the expanded diagram (c) and (d) by the lower corner of the basic triangle. As mid-point of the base line in the expanded diagrams, it acquires additional importance in its relation to the so-called "subcontraries" and to its own contradictory. Thus, a combination of (a) and (b) results in both (c) and (d):

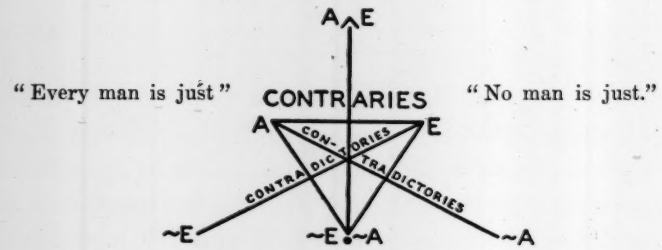


"Only some S is (are) P."
"At least some S is P." "Not every S is P."
(particular propositions)
(c)

Here in (c) there is clearly indicated by the position of the various forms of positive and/or negative, as well as universal or particular propositions, the difference between the "indefinite some" (see left and right lower extremities of diagram) and the "definite some" meaning of the particular proposition. In all cases, "some" is to be regarded as a sign of the quantity of the proposition, not of its logical subject. Particular propositions of both types (simple and composite) will express the non-necessary connection in actual knowledge between a universal subject and a determinate attribute. The "indefinite

some" particular admits the possibilities of one or both contraries being false, but affirms or denies *indeterminately* the true alternative. In the diagram a pair of composite contradictories ("$I \cdot \sim A$" and "$A \wedge E$")[30]—one of which is copulative in form, the other disjunctive—appear in proper logical relation to the more familiar forms, each of which is a simple proposition.[31] This "definite some" particular ($I \cdot \sim A$: "Some but not all . . .") simultaneously *denies* the possibility of one contrary being true ($A \wedge E$), and *affirms* that both contraries are false in the actual situation.

"Either A or E."



"Some man is just." "Neither E nor A." "Not every man is just."
("Some, but not all, men are just.")

(d)

The systematic character of the double triangle, as diagrammed in (d) above and (e) below, should become more and more apparent as the study of its properties continues. Some rather important implications are rooted in the very nature of contrary propositions (A and E). These are universal predications—

[30] Conventional symbols "•" and "∧" signify respectively conjunction and disjunction.

[31] Expressing as they do the formal aspects of contradictory alternatives provided by the law of contrariety, "$I \cdot \sim A$" (i.e. "$\sim E \cdot \sim A$") and "$A \wedge E$" are not to be interpreted as material contradictories. Yet they are not the formal contradictories, $\sim p \cdot \sim q$ and $p \vee q$ of the modern calculus of propositions, either.

affirmation and denial, respectively—with respect to a universal subject taken distributively; and it is not possible to both affirm and deny the same attribute of the same subject. But to deny either type of universal proposition (because such a proposition is materially false, not true) is to separate the predicate from or combine it with the same universal subject in the contradictory form. The latter proposition ("$\sim$E" or "$\sim$A"), a contradictory of the original A or E, will be a particular proposition by opposition to the universal type. Even though affirmative in form (I), it will be—in its logical relations—a simple negation of the subject-predicate relation in the opposite universal, and since the universal proposition distributes its subject, the particular proposition does not. This can only mean that the particular proposition of the simple type expresses an attribute as positively or negatively "present in" and/or "predicable of" an *indefinite some* of the things (logical inferiors) of which the subject, a universal, is predicable but not actually predicated. This is virtually, not formally, a reference to individuals.[32]

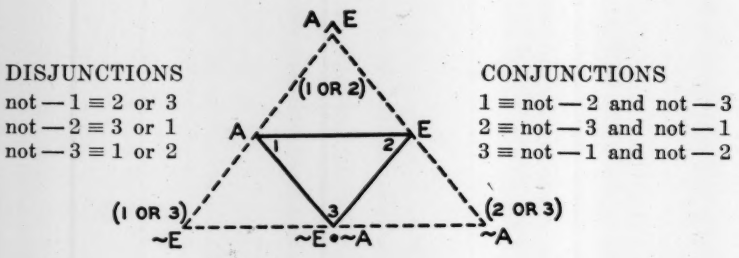
The law of contrariety, which applies to the two universal propositions and their negations, states that each of the following propositions is necessarily true for every instance of universal and of particular propositions having the same universal subject and the same universal predicate:

1. The simultaneous truth of both A and E is *impossible.*
2. That neither A nor E be true, with respect to an undetermined subject, is *possible.*
3. That either A or E (one, but not both) be true of an undetermined subject is *possible.*

The position at the top of the diagram for the formula that expresses this third possibility, together with the disjunctive form of the formula, suggests an analogous method for inter-

[32] Cf. *supra*, p. 41.

preting each of the simple, particular propositions (~E and ~A) which like "A∧E" are located outside the basic triangle. Such negation of a universal proposition, itself a simple proposition in so far as it is a simple denial, can be expressed as a proper disjunction of the contrary universal and the composite proposition which is a joint denial of both contraries. Or, to state a more general aspect of the law of contrariety as it applies to both contraries and their contradictories, and as it is represented below in diagram (e): *any corner of the outside triangle represents a proper disjunction of the two closest and equidistant points of the inscribed basic triangle.* The small triangle itself represents three mutually exclusive possibilities: (1) Every S is P, (2) No S is P, (3) Only some S is (are) P.



(e)

Another analogy arises from a consideration of the pair of contradictory composite propositions which lie at the *termini* of the vertical line in (d). Just as a negation of "A∧E" is equivalent to the copulative proposition of joint denial (~E·~A), so *the positing as true of any one of the three propositions of the basic triangle of truth possibilities, is equivalent to the joint denial of the other two possibilities.* This rule is represented in (e) by the *termini* and mid-point of each line of the large, outside triangle. If the proposition represented by the mid-point is true, then the extremities of the same

straight line represent logically related propositions which are true *a fortiori*. For example: The truth of the proposition "every man is intelligent" implies the simultaneous truth of the propositions "some man (at least) is intelligent" and "either every man is intelligent or no man is intelligent" (the disjunction, in the latter, of the original, true proposition and its false contrary). Similarly, the truth of the composite proposition "some men are just and some men are not just" entails (and is equivalent to) the simultaneous truth of the respective contradictories of the E and A contraries, viz. "some men are just" and "not every man is just."

For all practical purposes, diagrams (d) and (e) may be regarded as two different phases of the one diagram for the logical opposition (and equivalencies) between attributive propositions that have the same universal for their subject and the same "attribute" for their predicate. In constructing these diagrams, we have tried to be faithful to the logical theory of Aristotle himself, filling in some small lacunae to meet the requirements of a complete and consistent scheme. The result, in our opinion, is a more systematic and more graphic arrangement of opposites than the ancient "square" provides. So-called "sub-contraries" may be found in the lower corners of the outside triangle much as in the lower corners of the familiar square, but they are not treated explicitly because to do so is somewhat redundant, and also because they are regarded in certain Aristotelian texts that have been cited as not real opposites, at least not in every case. It is even more apparent that "subalterns" have no place in the present scheme, for the same logical relations are covered much more adequately and more simply in the list of three conjunctions in (e) above that provide equivalent meanings for each truth possibility admitted by the principle of contrariety. Indeed, the triangular device facilitates a simple explanation of all logical relations of compatibility and incompatibility between propositions of conven-

tional form, in terms of the principles of contradiction and contrariety alone. The former can be equivalently stated as the principle of excluded middle, while contraries admit of a middle. Thus, if Aristotelian principles are followed, the analysis of "opposites" must feature both disjunction and conjunction. And the admission of fundamental composite types to the scheme for the purpose of achieving a satisfactory synthesis turns out to be a reason for the symmetry of its structure.

It has become very clear that any systematization of the logical opposition of propositions must emphasize the point of view of truth and falsity. For example, any given proposition *must* be either true or false. Its contradictory *must* have the opposite value: false if the given proposition is true, true if the given proposition is false. Contraries *cannot* both be true, but both *may* be false. Thus exactly one proposition of the contradictory pair *must* be true and exactly one *must* be false; while in the case of the contraries, it is *necessary* that at least one of the two propositions be false. These laws or principles of logic are themselves expressed as modal propositions of the types: "It is necessary that . . .," "it is possible that . . .," etc. Before making an analysis of the modal proposition and the logical relations of the different types,[33] Aristotle discusses the possibility of both the positive and negative propositions being simultaneously true or simultaneously false. He is particularly interested in the law of contradiction as it applies to future contingents.

> In the case of that which is or which has taken place, propositions, whether positive or negative, must be true or false. Again, in the case of a pair of contradictories . . . or when it [the subject] is individual, as has been said[34] . . . whereas when the subject is universal, but the propositions are not of a universal character, there is no such necessity. . . .[35]

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[33] *De Interpretatione*, chapters 12 and 13. Cf. *infra* for analysis.

[34] Cf. 17b 26-29.

[35] Cf. 17b 29-37 for a discussion of this type.

When the subject, however, is individual, and that which is predicated of it relates to the future, the case is altered. . . .[36]

Several possible theories concerning contradictory propositions about the future are dealt with in chapter nine, where Aristotle takes the following position. When the existence of an individual subject is neither necessary nor impossible, and the future fact is both affirmed and denied, then *indeterminately* one of the two propositions must be true and the other false.

Everything must either be or not be, whether in the present or in the future, but it is not always possible to distinguish and state determinately which of these alternatives must necessarily come about. . . . . . Since propositions correspond with facts, it is evident that when in future events there is a real alternative, and a potentiality in contrary directions, the corresponding affirmation and denial have the same character. This is the case with regard to that which is not always existent or not always non-existent. One of the two propositions in such instances must be true and the other false, but we cannot say determinately that this or that is false, but must leave the alternative undecided. One may indeed be more likely to be true than the other, but it cannot be either actually true or actually false. . . .[37]

Here we have an explicit reference to things which are neither always existent nor always non-existent. That which is always non-existent never exists. So, analogous to the predication of an attribute present in *every* individual subject, in *no* individual, or in *only some* individuals of which the universal subject is predicable, three possibilities arise regarding any fact or any event: Such a fact or such an event is true or occurs (1) *always*, (2) *never*, or (3) *sometimes* only. Now that which always exists is necessarily true, that which never exists is necessarily false, and that which exists only sometimes is in one particular instance true, in another particular instance false—since such a fact or such an event is neither universally true nor universally false. Therefore, " it cannot be said with-

[36] *De Interpret.*, 18a 28-34.

[37] *De Interpret.*, 19a 28-19b 1.

out qualification that all existence and non-existence is the outcome of necessity." [38] Yet in some respect the ultimate reason for anything which exists—whether in the necessary or contingent mode—must be found in that which is of necessity.

In order to understand the relevancy of the aforesaid thesis for the philosophy of Aristotle, it is useful to follow closely the dialectic of chapters twelve and thirteen on the subject of modal propositions.[39] As is so characteristic throughout the *Organon* regarding any specific question, nominal or verbal considerations prevail in the beginning. This reflects Aristotle's conviction that every human language contains elements of a profoundly necessary character in its natural structure. Then in an analytical discussion of the modes of affirmation and denial, he directs our attention to the subject of the proposition. The ultimate subject of every modal proposition, as of every attributive proposition, is primary substance, that which is neither present in nor predicable of a subject. Now the *fact* of inherence of any given

[38] *Ibid.*, 19a, 23-24.

[39] The general significance and importance of this topic for the philosopher is appreciated by J. Maritain (*Formal Logic*, trans. I. Choquette [New York, 1946], p. 114: "The *impossible* may be reduced to the *necessary*, and the *possible* to the *contingent*. That is why Aristotle treats of but two modes, the necessary and the contingent. (*Anal. Pr.*, I, 9-22.)" But Maritain's reference to "contingence" as "possibility that it should not be" (*ibid.*, p. 113), and his own treatment of the opposition of modal propositions (*ibid.*, pp. 137-141) in terms of three modes, raise a problem. The reader is merely told that the contingent mode is omitted from the square of opposition "because, *in order to simplify things* [italics mine], logicians take *contingent* in this case as synonymous with *possible*." (*Ibid.*, p. 138.) This present study brings out, by means of the "triangle of opposition," the proper interrelations of *all four* modes, thereby avoiding the difficulties regarding the contingent mode in the traditional square. Regarding the analogous character of the concepts, "necessity" and "contingency," see Maritain, "Reflections on Necessity and Contingency" in *Essays in Thomism*, ed. R. Brennan (New York, 1942), pp. 25-38; 366-7. A good historical summary of the problem of modal propositions is the article by I. M. Bochenski, O. P., "Notes historiques sur les propositions modales," *Revue des Sciences Philosophiques et Théologiques*, XXVI (1937), 673-692.

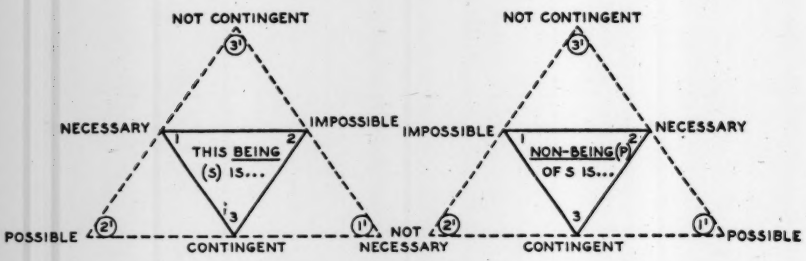
attribute in any primary substance may be enunciated in any of the following pairs of contradictory propositions:[40]

It may be.	It cannot be.
It is contingent.	It is not contingent.
It is impossible.	It is not impossible.
It is necessary.	It is not necessary.
It is true.	It is not true.

The analysis at this stage is in terms of the meaning of "necessity," "impossibility," and their contradictory notions. That which is true cannot have impossible being for its subject (in other words, it subject must be possible to be), but the being will be indeterminately necessary or non-necessary. Likewise, that which is false cannot refer to necessary being, for that which is necessary to be is and is true. That which is not necessary is possible not to be. (Non-necessary being and possible non-being are logically equivalent.) It may even be necessary for it not-to-be—for necessary non-being, which is equivalent to impossible being ("It cannot be.") is the contrary of necessary being ("It cannot not be."). In other words, it is possible to express the proposition "it is true" as a composite, modal proposition in the form of a proper disjunction: "Either it is necessary being or it is not." Similarly, "it is not true" reduces to "either it is necessary for it not-to-be or it is not necessary for it not-to-be." (Equivalently: "Either it is impossible or it is possible to be.") In lines one and three of the above table are found equivalent pairs of contradictories. Thus the total reduction to three pairs of contradictories—excluding the first and last lines—is found to be quite adequate when consistently interpreted with respect to being as the subject of the modal propositions in (f) and non-being as predicate in (g). The graphic interpretation in the following two diagrams is analogous to that in (e) above, and summarizes systematically Aristotle's chapter thirteen on the consequences of modal enunciations.

[40] *De Interpret.*, 22a 12-14.

It should be noted that the second diagram (g)—with a reversal of modal terms in positions (1) and (2), also (2′) and (1′)—in comparison with (f) represents considerably more than a summary of those modal propositions which have non-being as their subject.[41] Every point in diagram (g) corresponds in its position and number to a parallel point in (f). Because "non-being" is conceived after the pattern of "being," the



(f) (g)

impossible non-being of a particular S will be a logical *consequence* of the necessary being of that same S. A similar situation holds for the contradictory case: the non-being of a certain S will be possible *because* its being is not necessary. It would appear that the pair of contradictories including a modal proposition of type 2 with respect to either being or non-being, should be interpreted as *equivalent* in the two diagrams, rather than one being *consequential* to another of corresponding position in the parallel diagram. However, logically equivalent

[41] Of course the ultimate subject (primary substance) of every existential predication, as distinct from the verbal proposition, must be being, not non-being. This metaphysical consideration is taken into account in (g) by reference to "non-being" as a *predicate* of the individual primary substance, even though said predicate functions secondarily as subject with respect to the "modes of non-being" indirectly attributed to being. The justification for this is to be found in the first principles of being and knowledge, e. g. "Being is not non-being." "What is necessary cannot not be."

propositions are related in such a way that a *reciprocal* relation of antecedent and consequent holds.

A more difficult problem arises in the *De Interpretatione* regarding the " contingent " modal proposition. Here Aristotle follows a dialectical method in order to bring out a logical paradox which results from an initial assumption that the possible mode and the contingent mode are equivalent.[42] In the earlier part of chapter thirteen he presents the false reasoning of former logicians leading to a false conclusion about two pairs of contradictories.[43] It is by means of an important application of the principle of contrariety that the error is demonstrated:

> . . . the proposition ' it is not necessary that it should not be,' for *both these propositions may be true of the same subject* [italics mine], for when it is necessary that a thing should not be, it is not necessary that it should be.[44]

Contraries cannot be true together. With respect to the modal forms in (f) this means that if 2 (' it is necessary that it should not be,' the logical form in g) is true, then the contrary (1) must be false and its contradictory (1′), read ' it is not necessary that it should be ' in (f), must be true. The ambiguity of the term " possible " is implied by the contradiction in the following passage:

> . . . when it is necessary that a thing should be, it is possible that it should be. . . .[45]

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[42] " From the proposition ' it may be ' it follows that it is contingent, and the relation is reciprocal. It follows also that it is not impossible and not necessary."—*De Interpret.* 22a 15-16. Cf. 22a 17-22 for further consequences of this postulated equivalency of the possible and the contingent.

[43] An incongruous form of the two contradictory propositions of the necessary mode is given in parts B and D of the table in 22a 24-31. In 22b 10 Aristotle calls attention to the discrepancy, and later interchanges the two propositions by way of correction in 22b 22.

[44] *De Interpret.*, 22a 40-22b 2.

[45] *De Interpret.*, 22b 12.

> Yet from the proposition 'it may be' it follows that it is not impossible, and from that it follows that it is not necessary; it comes about therefore that the thing which must necessarily be need not be; which is absurd.[46]

These distinct but not mutually exclusive meanings of possibility ('it may be') are represented in the triangle at 2′ and 3. The diagram clearly shows the correct relation between the two meanings. If something is contingent (3) then it is possible (2′), but the reciprocal relation does not follow. For, if something is possible, it may be necessary instead of contingent—whatever is possible is either necessary or contingent. The statement in 22b 14-16, quoted above, obviously takes 'it may be' in the sense of 'it is contingent.' There is further evidence for this meaning in the following lines:

> But again, the proposition 'it is necessary that it should be' does not follow from the proposition it may be; nor does the proposition it is necessary that it should not be? For the proposition 'it may be' implies a twofold possibility, while, if either of the two propositions is true, the twofold possibility vanishes. For if a thing may be, it may also not be, but if it is necessary that it should be or that it should not be, one of the two alternatives will be excluded.[47]

It is of contingent being, therefore, that the propositions 'it may be' and 'it may not be' are both true. From the logical point of view, this contingent being takes a middle position between the two contrary propositions, 'it is necessary' and 'it is impossible.'[48] Aristotle's own treatment of the modal

[46] *Ibid.*, 22b 14-16.

[47] *Ibid.*, 22b 17-21.

[48] Aristotle reasons that both 'it cannot be' (2) and 'it may not be' (1′) are false of that which necessarily is (1). (Cf. 22b 30-32.) Now 'it may not be' is the contradictory of 'it cannot not be' (i.e. 'it must be'), and since both 2 and 1′ (necessary non-being and possible non-being) are true of that which cannot be (2), it follows that the non-equivalent propositions (1 and 2) are contraries. Developing further the implication of the Aristotelian text (lines 22a 38-22b 10) one finds that contrariety is now viewed in terms of the necessity predicated of contrary subjects (necessary being and necessary non-being). On the other hand, the treat-

propositions and their consequences (as well as equivalencies) emphasizes these three basic possibilities which should be represented in the adequate diagram of the various oppositions of modal propositions. The usual "modal square" representation fails to assign a proper place to "contingency"; and sometimes a much greater confusion is introduced where 'it is contingent' is erroneously regarded as the contradictory of 'it is necessary.' Both of these shortcomings of the ancient square are avoided in the triangle of mutually-exclusive possibilities and their contradictories that are diagrammed above in (f) and (g).

Once more our attention has been called to the central role of the principle of contrariety in Aristotelian logic. The two diagrams, (f and g), when viewed in relation to one another attract our attention to the horizontal line of the inscribed triangle which expresses the contrariety of *necessary being* and *necessary non-being*. That which is necessary is, but that which cannot be is not. Anything between these extremes is contingent—neither necessary being nor necessary non-being—in its mode of being. Either it is but is possible not to be, because it is not necessary being; or it is not but may be, because it is not impossible. While it cannot both be and not be in the same respect, it is by nature capable of being other than it is. It is contingent with respect to both being and non-being. This contingency of its being (and its non-being) means that 'it may be' and 'it may not be.' It is not surprising, therefore, that Aristotle should have written a kind of postscript to this important chapter thirteen of the *De Interpretatione* in which he finds an important place for those things which "are actual but also potential, whose actuality is in nature prior to their potentiality, though posterior in time"—between that which is actual of necessity and "those things

ment of the simple contrary propositions earlier in the *De Interpretatione* was in terms of the contrariety of the universal affirmation and the universal denial with respect to the same subject.

which are never actualized, but are pure potentialities." Dialectical considerations are kept essentially subordinated to metaphysical ones, and the dialectical portion of the chapter ends on a speculative note: "We may perhaps state that necessity and its absence are the initial principles of existence [εἶναι] and non-existence, and that all else must be regarded as posterior to these." [49]

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[49] *De Interpretatione*, 22a 18-20.

The Uneasiness of Science

by A. J. McNicholl, O.P.

IT IS GENERALLY recognized that the recent crisis in science has important implications of an epistemological and, more universally, of a philosophical nature. That the scientists themselves are aware of this is evident from the number of works that have appeared in which they endeavor either to formulate an epistemology that will safeguard the foundations of science, or to construct an entire philosophy on the basis of their scientific method and results. Many of these authors, however, while recognizing that science must invoke philosophy in order to find its bearings, and while actually attempting to work out a philosophy of their own, carry over into philosophy precisely that mentality or those assumptions which have provoked the crisis they are trying to overcome. In this paper I wish to draw attention to one of those assumptions, perhaps the most fundamental of those in question, and to show how it breeds a state of instability or uneasiness in science, which forces the mind beyond the confines of pure science to the region of a realistic metaphysics.

It is a primary fact of consciousness that there are two distinct kinds of knowledge, as there are two sources, namely intellectual and sensible. This self-evident duality reflects a deeper one, that of mind and body as endowed with the faculty of knowing, and of spirit and matter as objects of knowledge. It was a typical Cartesian and post-Cartesian conviction that science deals with matter, with visible nature, and philosophy with mind; and some have taken this to mean that science is confined to sense knowledge, while philosophy is purely a priori intellectual knowledge. This position seems to be implicit in the two extreme solutions to the problem of the relation of

science and philosophy. Idealism, which generally refuses to admit the independent validity of science, stresses the a priori and the intellectual to the exclusion of sense; whereas positivism, whether in its classical form or in the present neo-positivistic school, maintains that the only science is that based on sensible observation, and that the intellect has a purely logical or syntactical function. There are many systems, intermediate between these two extremes, which recognize the distinction and collaboration of sense and intellect in both science and philosophy; but among these there prevails, like the dominant note of a musical composition, a conception of the nature and role of the intellect in the interpretation of reality that implies an appreciation of sense knowledge which ill accords with the nature and demands of science, thus causing a situation in which science and philosophy are unsure and ill at ease and the mind is brought face to face with uncertainty and seeming contradiction.

The assumption of which I speak is the fruit of what may be fittingly called the mathematical mentality, if by that we do not mean a purely scientific attitude, which is fully legitimate, but a philosophical conception of mathematics and of its function in the understanding of nature. This mentality is characteristic of the Pythagorean school, and was propagated by Plato and the Neoplatonists. It suffered an eclipse for about a thousand years, but re-asserted itself in the Renaissance, in the general movement from Aristotle and the schoolmen towards Plato and the experimental study of nature. In essence, it holds that nature is mathematical in structure, and that the ultimate explanation of things and events pertaining to nature must be in terms of mathematics. In brief it may be described as a purely quantitative vision of corporeal reality. The Copernican theory did much to strengthen this conviction revived in Bacon and Greathead, under the influence of the Arabs, and in the Parisian nominalists, since it seemed to prove that the truth

about natural happenings must be discovered rather by mathematics than by the evidence of the senses or by a priori philosophical theories. Galileo linked this mathematical attitude to a precise method of physical observation and experiment, thus founding mathematical physics in its modern form.

In Descartes, this mentality is clearly revealed in its true light as an obsession for clarity, based on the separation of mind and matter, and assuming that there is no vital interchange or dependence between intellect and sense. He expressly adopted the mathematical method as the unique method of natural philosophy, and even of the philosophy of spirit, which must proceed deductively from a few clear concepts and principles of internal experience, without reference to the data of sense. Once intellectual knowledge is divorced from sense is becomes self-sufficient, with its direct object within the mind itself, and ruled by necessary but purely subjective norms. Behind this universal mathematicism of Descartes lies the conviction, typical of the Renaissance period, that human reason can attain to perfect and adequate knowledge of corporeal reality, which is supposed to be fully intelligible. Mathematics alone deals with an object that is fully intelligible to the human mind, since that object is mainly a construction of the mind itself. Nature, to be fully intelligible, had therefore to be conceived mathematically, as comprising nothing beyond extension and local motion, so that everything in nature could be represented by clear and definite images or symbols of a mathematical type. This mathematical conception of the intellect has had an extraordinary vogue in the history of later thought, and remains vigorously active and widely shared to-day. It seems to answer to the innate longing of the mind for clarity and perfect knowledge; quantity is adaptable to the rigid schemas and deductions of mathematics, and is universal in nature. In reality regarded quantitatively the most obvious note is measurability according to spatial dimensions; both things, and the

relations between things, can be exactly expressed from this aspect; and time and the movement of bodies can also be accurately determined on the basis of distance. The laws of nature, too, would seem to be patient of adequate formulation by means of mathematics, so that a symbolic and quantitative representation of nature in mathematical terms became the ideal pursued by some philosophers and by most scientists as the ultimate explanation of nature.

The mechanistic interpretation of nature is the inevitable consequence of this universal mathematicism. If our knowledge of nature is perfect, and if such knowledge must be mathematical in type, it follows that whatever cannot be represented in that mathematical fashion is not real in nature; that nature consists only of extension and motion and of those qualities which they necessarily involve. Sense knowledge, however, for the most part lacks such clarity and adaptability to mathematical manipulation; so that such knowledge must be regarded as untrustworthy and unscientific, and those corporeal qualities which are the direct objects of the senses must be denied objectivity. The prejudice against the validity of the senses is most apparent in Descartes who constructs his system on innate notions and principles to their almost complete exclusion. His posterity has not always been so radical, nor yet so logical; for the mathematical conception of the intellect does logically lead to the undue restriction of sense knowledge or to its separation from the intellect. When sense knowledge fails in operations of exact measurement, it is held to fail in objectivity, or else the uncertainty which it involves is transferred to the objective world; and that which it manifests, but is not of a quantitative nature or susceptible of exact measurement, is regarded as not belonging to nature in its objective reality.

In affirming the sole validity of the mathematical method in the explanation of the visible universe, one is thus led to deny or unduly limit the validity of that sense knowledge which, in

observation and experiment, must form the basis of physical science. It is the principal merit of the neo-positivistic school that it emphasises the preponderating role of the senses in such branches of knowledge. It shows that science, as such, depends essentially on sense and instruments of measure in the acquisition of knowledge. For the members of that school of thought, intelligence has a purely external and subsidiary role in science, that of co-ordination and definition, of correlating the signs which express that which has been observed and measured, according to the laws of syntax, whether mathematical or logical. Science itself is totally enclosed within the limits of purely sensible experience and verification; it is restricted to that which is, in principle, observable and measurable, and seeks to determine the spatio-temporal relations of this empirical object. And it is interesting to note that whereas mathematics seeks certainty and clarity, science, according to this school, can never enjoy more than a limited probability. Even in this extreme school we can see the dominance of that mathematical mentality of which we have spoken; it is precisely because mathematics is regarded as the type of true and certain knowledge and the highest form of intellectual knowledge that any other form of intellectual knowledge which does not possess such mathematical certainty is denied the name and dignity of science, and that sense knowledge is held to be essentially uncertain.

It is evident that as long as the mathematical conception of the intellect is dominant, as long as the assumption of the sole validity of the mathematical method in the interpretation of nature is retained, so long will the alliance between mathematics and physics be uneasy and unstable, so long will intellect and sense appear to be opposed. One demands a clarity, rigidity and a necessity that are not possessed by the other. The extent to which this assumption has been shared during the last three hundred years becomes apparent in the ebb and flow of philosophical thought between positions that may generically be

called rationalism and empiricism. Intellect and sense have been set in opposition, and philosophy has wavered from one to the other, or sought to effect a reconciliation; but sense can be opposed to intellect only if that faculty is conceived mathematically or as proceeding totally a priori.

As was to be expected, the philosophers were first to see this dilemma, and to attempt to overcome the dualism inherent in pan-mathematicism. Kant stated the problem under a critical aspect, and sought to find a way out of the impasse, but could not succeed since he retained the assumptions which in fact create the difficulty. If scientific knowledge must necessarily be of a mathematical type, and if it requires the co-operation of the senses, we are led to postulate that realities which pertain to the sensible order, such as space and time, are subjective forms capable of assuring that universality and necessity which science demands. The mathematical intellect cannot tolerate sense as a source of obscure and incomplete knowledge; it must either proclaim its independence of sense, as in idealism and many forms of rationalism, or confer on it qualities which are proper only to the intellect, as in the Kantian solution. The artificial opposition created by the mathematical mentality in philosophy can end only in the negation of one or other of the extremes, or in their confusion or in some hybrid faculty, half intellect and half sense.

It is only in the last hundred years that science generally has become alive to the problem and has realized the instability of the foundation on which it had been resting. The critical examination of the scope and validity of the scientific method, particularly in France in the last century, prepared the way; and the inadequacy of the classical mechanism to explain and incorporate the results of experimental investigation has become openly apparent in the present crisis of science. Many of the scientists themselves have tried to provide themselves with a new philosophy, thereby confessing the inadequacy of the old;

but when they pass over to philosophy they frequently retain the mathematical mentality ingrained in them by a life-time of specialization, and thus the problem which they seek to solve becomes all the more acute and impossible of a true and lasting solution. The crisis has, indeed, forced man to admit that his knowledge of nature is not perfect and adequate, and has thus destroyed one of the gratuitous assumptions inherited from a self-confident age; but the mathematical mentality has hardened into a conceptual cadre which is simply taken for granted as marking the natural limits of intellectual activity.

The alliance between mathematics and physics is necessary and justifiable; experimental knowledge of physical nature is most fully scientific when it has been systematized and interpreted by means of mathematics. But this alliance cannot be justified if it is assumed that mathematics is the supreme form of intellectual knowledge, and still less if no other form is recognized as valid, for this is equivalent to undermining that sense knowledge which is the foundation of physical science, and which alone can establish contact with the world of real experience. The scientist who shares this mentality thus finds himself torn between two opposing tendencies, between the subjectivism which this tendency implies, and by the empiricism of his science. His initial philosophical assumption leads him logically to limit the sources of his knowledge, to perform, as it were, an amputation or at least a mutilation of his sense faculties which link him to reality; his unstability is that of the ballet-dancer, balanced precariously on his toes on the solid ground of hard facts. This inner tension or uneasiness is inherent in the very nature of mechanistic science, and a crisis, or disruption of the accepted cadre, was bound to occur when science had so developed as to be faced with realities that are not capable of exact measurement by known means, or when the scientist became interested in realities that are not observable. We are witnessing to-day the internal disruption of pan-mathe-

maticism on the purely scientific plane, and the breaking of the bonds with which scientism had for centuries fettered the intellect, denying its truly philosophical activity.

There are limits set by its nature to the mathematical method; it can be used in a certain field, and to a certain degree, but no further. It is not able to embrace, still less to explain, every aspect of reality revealed by observation. It can admit only a particular process of observation, that of quantitative measurement; and this must lead to the adoption of a deformed and dwindled view of reality, since other methods of observation are discarded. It seems that scientific observation has to-day attained to those limits beyond which the mathematical interpretation is no longer valid or possible, and where philosophy is called for. The stubborn retention of the mathematical method beyond these limits causes the appearance of antinomies which bid the scientist pause to re-consider his position.

Valid sense knowledge is not restricted to that which yields accurate measurements, or pertains only to the quantitative aspect of things. It is valid also with regard to those corporeal qualities which form its proper objects, and which manifest other facets of reality. Nor is the intellectual knowledge of reality confined to mathematics. The fundamental error of pan-mathematicism is the confusion of the various orders of abstract knowledge into the one, univocal and homogeneous science, and of the distinction and variety of beings into the correspondingly homogeneous object, whose common measure is quantity, and within which all specific determinations disappear. This univocal conception of science is present in both extremes of modern philosophy, in Descartes as in neo-positivism, and necessarily implies an unnatural division of the sources of knowledge, and an arbitrary devaluation of either science or philosophy. It is clear to-day, from reflections based solely on the state of science, that science of itself is insufficient, and that its foundations and validity cannot be guaranteed if the only valid

abstract knowledge that we possess is mathematics. It demands a science other than mathematics, of a higher and different order, that can guarantee the validity and define the limits of both intellect and sense and establish the true hierarchy of human knowledge. This involves a vision of the place of the various objects of science in regard to the primal object of the intellect, which is being; only in relation to being as such can the true extension and import of mathematical being and of sensible being be judged. In one word, science, of its nature, calls for metaphysics as well as for a philosophy of nature other than mathematical.

As against the univocity either of knowledge or of its object, we assert that there is an essential variety and specific difference between the real beings which integrate nature, and that there is a variety of forms of intellectual knowledge corresponding to the different degrees of intelligibility of those objects. The philosophy of nature considers its object from the abstract and universal viewpoint of movement, as including life, and thus has close contact with physical science which treats of the same object under a different aspect. Abstracting from movement, the mind attains that which is permanent in nature, as something material and without motion or the sensible qualities which are connected with motion. This object is quantitative being, being as having parts disposed according to the spatial dimensions of length, breadth and thickness; and since all that is in nature is connected with quantity, the science of this object, mathematics, seems to be all embracing and supreme. But the mind can delve deeper into the mine of reality, and, abstracting from quantity, consider reality simply as being, as the subject of existence and action; and this is the plane in which metaphysics moves. It is a more abstract science than mathematics, but its object is no less real, and is alone fully intelligible and the source of intelligibility in what is real in the object of mathematics. The mathematician may argue that

since quantity is universal throughout nature, no proper and distinct object can remain for metaphysics; but this is to neglect the grades of intelligibility in every object, which can thus be studied by different sciences under different formal aspects; and it is a form of argument that would strike at mathematics itself, since science and the philosophy of nature deal with an aspect of reality that is also universal throughout nature.

The mathematical physicist is generally lacking in the genuine metaphysical mentality, which centers on the abstractive intuition of being as being; and when he turns to philosophy it is not surprising that he follows the path trodden by those philosophers whose mentality was more scientific than metaphysical. One such philosopher of whom we are reminded by the efforts of scientists to-day to construct their own system is Ockham, from whom some of them have explicitly drawn inspiration. But the same defect which we have been considering is found, though in a different way, in the Venerable Inceptor. His, too, was a mathematical mentality. Sense and intellect are, for him, only extrinsically united; they do not share, each in its own way, in the one complete act of knowing, which terminates in the synthetic unity of the concept. Both have the same object, which they express independently in their own fashion. The direct intuition of the individual reality which he postulates for the intellect is really a form of sense knowledge, transferred to the intellectual plane, thereby rendering one of the faculties redundant. By denying the value of abstract knowledge and the objective correlate of universal concepts, particularly that of being, he effectively rejects metaphysics. There is no science of being as such, but only of individual beings. The vacancy left by the rejection of metaphysics must then be filled by mathematics, which treats of individual, or material, being under its next most general and real aspect.

A philosophy such as this is but the speculative statement of

the scientist and mathematicist attitude. It allows that the positive sciences deal with every kind of being, which thus completely occupy the field of research, so that there can be no reality that may form the proper object of metaphysics. If philosophy be only the conceptual elaboration of the data discovered by science, it seems unnecessary and undesirable, since this function is now entrusted to mathematics; or else it is retained only as concerned with criticizing the scientific method and evaluating the laws established by it. Recourse to such a philosophy as this can only accentuate the dilemma and uneasiness of science, since it strengthens the assumption that gives rise to them.

Man is a unit, body and soul, in which sense and intellect collaborate rather than oppose one another; and human knowledge is an organic and hierarchic whole, without internal tension, by which the mind seeks to reconstruct reality within itself under all its aspects. It can never fully succeed in that task, for human knowledge, like man himself, will never be perfect. A thorough realism, which measures knowledge by reality, holds that it is never fully comprehensive of reality; it agrees with Hamlet that "there are more things in heaven and earth, Horatio, than are dreamt of in your philosophy." Yet knowledge must be consistent with itself, and utilize to the full the various faculties of man, without the sacrifice or neglect of any. A gratuitous assumption which sunders the unity of man and of knowledge or mutilates his knowing powers is the enemy of humanism in its true sense and will eventually show itself as such, in crisis or contradiction. The senses are true and indispensable sources by knowledge; they are not the only source. The intellect also knows; it possesses a proper and unique vision or intuition of reality. But such intuition is not pure and direct, as Plato and Descartes taught, nor is its object the individual unit of concrete reality, as Ockham supposed. The intellect, in this life, has for its object the being or essence

of a material thing; its knowledge is the fruit of a process in which intellect and sense combine and collaborate to generate the concept. To the physical unity of man corresponds that unity in the act of knowing which Aristotle called ἐπαγωγή, and which his Thomistic disciples call universalizing abstraction. This central tenet of Aristotelian-Thomistic philosophy can alone safeguard the rights of both sense and intellect, as of science and philosophy, and explain their union and complementarity in the full, complete, human act of knowledge, in which the whole man, without schism or stunting, is engaged and expressed. The uneasiness of science is ultimately the uneasiness of the intellect in the face of what is really the mutilation of man; and it calls for a philosophy that is truly humanistic, in saving and stressing all the values of human nature and of human knowledge.

The Angelicum,
Rome, Italy.

From the Secretary's Desk

Twenty-Fourth Annual Meeting of the American Catholic Philosophical Association

The Twenty-Fourth Annual Meeting of the American Catholic Philosophical Association will take place at Hotel St. Paul, St. Paul, Minnesota, on Easter Tuesday and Wednesday, April 11 and 12, 1950, with His Excellency, Archbishop John Gregory Murray, and the Catholic Senior colleges and seminaries of the St. Paul area as patrons of the meeting. The general theme of the discussions will be *The Natural Law and International Relations.*

Dr. Charles A. Hart of the Catholic University of America will give the initial paper at the first morning general session on the subject *The Metaphysical Foundations of the Natural Law.* This will be followed by a paper by Dr. Charles de Koninck of the University of Laval, Canada, on *The Ethical Aspects of the Natural Law.* Concurrent round tables for the first afternoon session will be in the following fields: (a) *Logic and the Method of Teaching Philosophy*: Dr. Eugene Babin of the University of Laval will have the first paper on *Philosophy as A Basis for Integration in a Catholic Liberal Arts College.* The second paper will be by Rev. Malachy Sullivan, O. S. B. of St. Benedict's Abbey, Atchison, Kansas, on the subject *The Implementation of the Integration Program in a Catholic Liberal Arts College.* (b) Psychology: The papers by Rev. Richard Zegers, S. J., Fordham University, on *The Relation of Psychology to Philosophy in Catholic Colleges,* and Dr. Harry V. McNeill of the Veteran's Administration on *The Relation Between Philosophical and Clinical Psychology in Catholic Colleges.* (c) Metaphysics: Rev. Charles J. McManus, S. J., of New York, will have the first paper on *The Good in Metaphysics and in Ethics.* Second paper will be by Rev. Michael V. Murray, S. J. of Marquette University on *The First Principles in Metaphysics and in Ethics.*

The Annual Dinner at 7.00 P. M. on the evening of April 11 will be addressed by His Excellency, Archbishop Murray, speaking to extend the greetings of the Archdiocese. The Presidential Address by President Dr. Ernest Kilzer, O. S. B. of St. John's University, Collegeville, Minnesota, will have for its subject *The Natural Law and World Unity.* For the Annual Association Address, an invitation has been extended to

the Honorable J. Howard McGrath, Attorney General of the United States to speak on a contemporary aspect of legal philosophy.

The second general morning session on April 12th will be addressed by Attorney Ben Palmer of Minneapolis, Minnesota, on the subject *The Natural Law and International Relations.* The second speaker will be Dr. Heinrich Rommen of the College of St. Thomas, St. Paul, Minnesota who will have for his subject, *The Natural Law and War Crimes Guilt.* The afternoon concurrent round tables sectional meetings will be as follows: (a) Philosophy of Literature with papers by Professor Louis J. Mercier of Georgetown University speaking on *Comparative Philosophy and Literature as a Special Approach to Cultural History*; Rev. A. J. Denomy, C. S. B. of St. Michael's College, University of Toronto, Canada, speaking on *Philosophical Backgrounds of Provencal Courtly Literature.* (b) Ethics and the Philosophy of Society: Dr. Lottie Kendzierski of Marquette University will speak on *Object and Intention in the Moral Act*; the second paper will be given by Sister M. Julienne of Mt. Mary College, Milwaukee, on *The Relation Between Knowing and Doing.* (c) History of Philosophy: Rev. Ignatius Brady, O. F. M. of Duns Scotus College, Detroit, Michigan, will read a paper on *Law in the Summa Fratris Alexandri.* The second paper will be by Prof. Theodore James of Manhattan College, New York City, who will speak on *Some Historical Aspects of St. Thomas' Treatment of the Natural Law.*

Some of the titles were tentative at the time of going to press and may be changed later. Each speaker is asked to have a paragraph summary of his paper not to exceed 300 words for publication in the April issue of THE NEW SCHOLASTICISM. This issue must go to press on February 1. Hence the summaries must be sent to the Association Secretary at Catholic University of America, Washington 17, D. C. for assembling not later than Jan. 20, 1950. Cooperation in this item is urgently requested. All speakers are reminded that their papers should not exceed thirty minutes of reading time in order to allow for at least thirty minutes of discussion on each paper read. All papers must be ready for filing with the Secretary at the time of the Annual Meeting. This is very important, as we are desirous of getting the papers to the printer immediately after the meeting, for publication in our *Proceedings.* Prompt action will mean that the printer will have the *Proceedings* ready for distribution before the close of the academic year in June. Each year the Secretary has experienced a great diffi-

culty in separating some of the papers from their respective authors much to the delay of the publication of the *Proceedings*.

There will be an Executive Council meeting immediately after lunch on April 11 in the President's room. St. Paul will be celebrating the Centennial of the State of Minnesota and of the Bishopric of St. Paul. All members who can possibly do so are urged to attend. Dr. John Oesterle of the College of St. Thomas, St. Paul, Minnesota, is Chairman of the Local Committee on Attendance. Reservations for rooms should be addressed directly to the Manager of the Hotel St. Paul. This is the first meeting of the Association at St. Paul.

First Meeting of World Union of Catholic Philosophical Societies

The first general assembly of the newly organized World Union of Catholic Philosophical Societies took place at the headquarters of the Society in Fribourg, Switzerland, September 17, 1949. The American Catholic Philosophical Association was represented by our former President, Dr. John O. Riedl, now with the American Army of Occupation in Germany; Rev. William H. Kane, O. P., now at the Angelicum, Rome, Italy; and, Mr. John J. Pauson of the Catholic University of America. Canon A. Mansion was elected Chairman. Rev. I. M. Bochenski, Acting Secretary, gave a report of the Provisional Secretariate for 1948 and 1949. The articles of Statutes as published in the recent issue of The New Scholasticism were discussed and voted on singly with several minor amendments to the original draft. The following officers were elected: President, Canon L. de Raeymaeker, President of the Institut Supérieur de Philosophie of Louvain; First Vice-President, Rev. Ch. Boyer, secretary of the Roman Academy of St. Thomas Aquinas; Second Vice-President, Prof. Vernon J. Bourke, past president of the American Catholic Philosophical Association; and General Secretary, Rev. I. M. Bochenski, O. P., professor at the University of Fribourg, and member of the Société Philosophique de Fribourg. A telegram was sent to the Holy Father, Pius XII, asking his blessing upon the work of the newly organized Union. It was agreed that each of the Societies in the Union would be asked to pay to the Union five per cent of its annual dues, but not to exceed $20.00 from any one Society. If such dues were not sufficient to cover the expenses of the Union, the Committee would be empowered to ask for a further contribution not in excess of $10.00 from any one Society. The office of the

Union was fixed officially at Fribourg, Switzerland. Twenty-five Catholic Philosophical Associations from Canada, the United States, and various countries of western Europe were represented at the first meeting. Dr. Bochenski represented the Union at the Federation of Philosophical Societies in Neuchatel, Switzerland, on September 15 which elected a Preparatory Committee for the Eleventh International Conference of Philosophy in 1952.

Conference on the Teaching of Philosophy

A conference on the teaching of Philosophy was held at Western Reserve University on October 14 and 15, 1949 with a number of members of our Association being in attendance. The following subjects were discussed: (a) *Types and Trends in General Introductory and Required Courses*; (b) *Teaching of Ethics*; (c) *Teaching of Logic and Scientific Method*; (d) *Teaching of the History of Philosophy.* At an evening session on the first day, the *Present Situation in Teaching Opportunities,* and a *Survey of the Teaching of Philosophy* were discussed. At a final plenary session on the afternoon of October 15, the subjects of discussions were: (a) *Teaching Philosophers to Teach Philosophy*; (b) *Teaching Teachers to Teach Philosophy*; (c) *Teaching of Philosophy in Boston University*; and, (d) *Functions of an Annual Convention on the Teaching of Philosophy.*

Local Conference Meetings

The District of Columbia-Maryland Conference held a reorganizational meeting at Georgetown University on December 2, 1949. Dr. Rudolf Allers read a paper on *Ethics and Anthropology* and Rev. Thomas J. Higgins, S. J. spoke on *Ethics and the Nuremburg Trials.* Prof. Louis J. A. Mercier of the Graduate School at Georgetown University was chairman. Plans were made for several additional meetings during the academic year. The New England Conference is under a new chairman, Rev. Lucien Dufault, O. M. I. of the Oblate Fathers College at Natick, Mass., who writes to say he is arranging a number of meetings for this year at Boston College Library Hall. No further details have been received as we go to press.

Miscellaneous

The American Society for Aesthetics held its sixth Annual Meeting at Oberlin College, Oberlin, Ohio, on Oct. 21-23, 1949. The historical, psychological, philosophical, contemporary, and educational aspects of the interrelationship of the arts were discussed at the various sessions.

The Secretary's Office is in receipt of the first Reeves Associates Lecture in honor of the late President of Seton Hill College, Greensburg, Pa., Rev. Doctor James A. W. Reeves. Dr. Louis J. A. Mercier of Georgetown University was the lecturer. His subject was *Philosophy and the Contemporary World.* The papers read at the inauguration of the Very Rev. Hunter Guthrie, S. J. as President of Georgetown University have also been published under the general title of *Tradition and Prospect.*

Charles A. Hart,
Association Secretary.

The Catholic University of America,
Washington, D. C.

Survey of Periodicals

Articles on Philosophy

Antonianum, XXIV (Apr.-July 1949) 2-3:

P. Straneo, "La Teoria della Relatività nella filosofia e nella fisica moderna": The theory has been confirmed by experimental tests and has even joined forces with quantum mechanics.

Cientia y Fe, V (Apr.-June 1949) 18:

R. Llorente, "La verdad en Heidegger": H. founds truth on pre-ontological knowledge which is neither rational nor objective. *A. de Reyna,* "La muerte: posibilidad decisiva y decisoria de la vida": Death is important not as a negation of life but as a fulfillment. *I. Quiles,* "Más allá del existencialismo: filosofia in-sistencial": Man is the point where matter and absolute "Sistence" unite. *E. Pita,* "Lo esencial y lo accidental del derecho de propiedad según la filosofia católica": The right to property, as part of a hierarchy of values, is subordinated in exercise to the common temporal good. *L. Carranza,* "La liberdad. III. aspecto ético": The theory of mediate concursus does justice to the causalities of God and creatures. *A. Fortini,* "La estructura psiquica en el adolescente, según E. Spranger": S. emphasizes the introspective tendencies of adolescence and calls religion a decisive interest at this period.

Divus Thomas (Fribourg), XXVII (Sept. 1949) 3:

J. Endres, "Die Potenz-Akt Lehre heute": Far from confuting hylomorphism, modern physics attests to duality in nature.

Divus Thomas (Piacenza), LII (Apr.-June 1949):

D. De Petter, "Personne et personnalisation": Human personality, as found in rationality, confers independence of being and involves personal operation regarding the world, society, and God.

Dominican Studies, II (July 1949) 3:

A. D'Entrèves, "Law and Morals": For Aquinas, "lex" is an extrinsic principle and "ius" an intrinsic quality of action. *I. Bochenski,* "Logical Remarks on *A*-Sentences": A system is outlined for the use of sentence-building predicates whose arguments are men-

tioned sentences. *K. Foster,* "A Note on the *Inferno*": The destructiveness of sin is most emphasized in Dante's treatment of the subject.

Ethics, LIX (July 1949) 4:

R. Tugwell, "Variation on a Theme by Cooley": There is need for social mechanism to direct and control human inventiveness. *J. Bernard,* "Prescriptions for Peace: Social-Science Chimera?" Seeking peace through science rests on the assumption that there is a natural harmony in the world, that men will accept science, and that human nature can be remade to order.

Ethics, LX (Oct. 1949) 1:

E. Hall, "The 'Proof' of Utility in Bentham and Mill": B. and M. do not "prove" their principle of utility but, since a first principle can only be assumed, attempt to persuade men to accept it. *A. Macfie,* "What Kind of Experience is Economizing?": Relative to good ends, efficiency affords satisfaction and economy is a value. *C. Salmon,* "The Notion of Responsibility": Man acts responsibly when he identifies himself with a non-empirical condition of reality. *W. Quillian, Jr.,* "The Problem of Moral Obligation": Obligation is always conditional; ethics should show what man wants and how he can get it. *L. Garvin,* "Normative Utilitarianism and Naturalism": For naturalism, the good of the whole, is secondary to individual goods; goods are always for individuals.

Les Etudes Philosophiques, 4th yr. (Apr.-June 1949) 2:

L. Brunschvicg, "Le devoir des éducateurs": Education should develop freedom of the mind. *E. Husserl,* "La crise des sciences européens et la phénoménologie transcendentale": Modern thought has sought a universally valid method for studying objective reality; specific qualities always escape it. (To be continued.) *M. Blondel,* "Paradoxale voie du renoncement et de la mort": Death is a deliverance in conformity with God's will. *G. Barie,* "Le moi transcendental": Mind thinking is the transcendental ego; mind thought is the psychological ego.

Franciscan Studies, IX (June 1949) 2:

K. Lynch, "The Alleged Fourth Book on the Sentences of Odo Rigaud and Related Documents": All evidences indicate that R. did not write a Fourth Book.

Journal of the History of Ideas, X (Oct. 1949) 4:

L. Edelstein, "The Function of the Myth in Plato's Philosophy": Myth was used to integrate the rational and irrational sides of man. *C. Singleton,* "Dante and Myth": Allegories were richer for Dante than for Plato because of revelation. *W. Kaufmann,* "Goethe and the History of Ideas": G. set a pattern for 19th century German philosophy by his works and by the personal experiences he claimed. *B. Wolstein,* "Addison Webster Moore: Defender of Instrumentalism": Though little known, M. deserves to rank as a founder of instrumental naturalism.

The Journal of Philosophy, XLVI (July 21, 1949) 15:

P. Edwards, "Do Necessary Propositions 'Mean Nothing'?": *Proposition,* an ambiguous word, refers to objects which assert facts and to those which reflect facts, and the same necessary proposition may assert different facts at different times.

The Journal of Philosophy, XLVI (Aug. 4, 1949) 16:

A. Hofstadter, "The Causal Universal": The causal universal, basic to science and common sense, is a relational concept whereby elements or traits are connected to justify generalization. *W. Sellars,* "Acquaintance and Description Again": A distinction must be drawn between understanding a logician in his empirical descriptions and understanding his linguistic habits and limits.

The Journal of Philosophy, XLVI (Aug. 18, 1949) 17:

M. Thompson, Jr., "The Logican Paradoxes and Peirce's Semiotic": P.'s distinction between icons (signs taken in themselves) and symbols (signs used according to convention) solves the problem of the paradoxes in his philosophy. *C. Rau,* "The Ethical Theory of Jean-Paul Sartre": Though S.'s humanism is extreme, it has value in urging self-reliance.

The Journal of Philosophy, XLVI (Sept. 1, 1949) 18:

E. Beardsley, "'Non-Accidental' and Counterfactual Sentences": Counterfactual assertions can be made but rest ultimately on the demonstration of underived sentences.

The Journal of Philosophy, XLVI (Sept. 15, 1949) 19:

H. Leonard, "Ethical Predicates": Positivism should assign descriptive meaning to ethical terms, e. g., within an ethics of the greatest

good for the greatest number. *W. Oliver,* "Can Naturalism be Materialistic?": Materialism is not consistent with conditions for observation and theorizing.

The Journal of Philosophy, XLVI (Sept. 29, 1949) 20:

A. Bahm, "Existence and its Polarities": Existence is always polarized, and the polarities are never exhausted by interpretation. *E. Strong,* "How is Practice of History Tied to Theory?": The historian should be aware of the theoretical frame of reference from which he examines history as an "objective context." *P. Stanley,* "Fantasy on a Theme by Plato": When P. stated paradoxes of contradictions, he opened up the field of "social communication" for study.

The Journal of Philosophy, XLVI (Oct. 13, 1949) 21:

H. King, "Aristotle and the Paradoxes of Zeno": Z.'s misunderstanding lay in using a Spatial Analogy to time and in failing to esteem the now as a fluid bound.

The Journal of Symbolic Logic, XIV (Sept. 1949) 3:

E. Specker, "Nicht konstrukiv beweisbare Sätze der Analysis": Using the concept of recursive and calculable functions, several basic propositions of analysis are shown not to be constructively provable. *L. Henkin,* "The Completeness of the First-Order Functional Calculus": A new completeness proof is provided, capable of generalization to systems with a non-denumerable infinity of primitives. *G. Bergmann,* "A Syntactical Characterization of S5": An appendix to a paper by McKinsey. *J. Myhill,* "Note on an Idea of Fitch": The class of arithmetic predicates coincides with the class of recursively definite ones. *T. Hoo,* "m-Valued Sub-system of $(m + n)$-Valued Propositional Calculus": A construction is given for a complete m-valued sub-system of any $(m + n)$-valued propositional calculus.

The Personalist, XXX (Oct. 1949) 4:

D. Robinson, "The Ethical Crisis of the Atomic Age": Science cannot say what ought to be and must be supplemented by reference to the spiritual. *E. Moore,* "The Ult-atom and the Person": The world requires the existence of an Absolute Person. *J. Fulton,* "Science and the Naturalization of Man": Life is active, a living of truth more than knowing of fact.

The Philosophical Review, LVIII (Sept. 1949) 5:

H. Schneider, "Metaphysical Vision": Metaphysics is the correlation of knowledges about existence (science) and about experience (humanism). *D. Piatt,* "Philosophy, Pragmatism, and Human Bondage": Philosophy has erred in withdrawing from the fully human world of experience, desire, feeling. *C. Hartshorne,* "Chance, Love, and Incompatibility": To some extent, all events are chance; their continuity is supplied by the bridge of relevancy formed by love.

Philosophy, XXIV (July 1949) 90:

W. Stace, "The Parmenidean Dogma": Since there is nothing contradictory about the sequence between non-existence and existence, the Parmenidean *ex nihilo nihil* fit is rejected. *G. Mure,* "The Organic State": The state, in a modified way, should be organic with a hierarchical structure of loyalties and a balance of conflicting interests. *D. Raphael,* "Bishop Butler's View of Conscience": B. did not discern a truly moral faculty here; he merely described how good people reason. *J. Gregory,* "The Aesthetic and Science": Science begins in the aesthetic, and in contemplating its technical world, it really ends there. *G. Abrahams,* "The Verb 'To Cause'": Regularity can dupe even a learned mind into stating the whole order of the universe in terms of such uniformities alone.

Philosophy and Phenomenological Research, X (Sept. 1949) 1:

A. Isenberg, "Natural Pride and Shame": Pride, proportioned to the value of things possessed, is justifiable; but there is no corresponding reason that would justify shame. *A. Hofstadter,* "Some Reflections on the Problem of Man": A logically articulated account of man must express his existential structure. *H. Casanueva,* "The Philosopher and Concrete Existence": Philosophy must consider the concrete existence, historically conditioned and temporally revealed. *P. Carmichael,* "Limits of Religious Knowledge": Religion is not a form of knowledge but something private and esthetic. *H. Ruja* and *M. Shapiro,* "Pluralism and Contemporary Naturalism": Logic would compel the reductionism which the naturalists oppose. *I. McGreal,* "A Naturalistic Analysis of Value Terms": Values are objective in the sense that entities have a relational aspect to cause favor or disfavor on being known.

Philosophy of Science, XVI (July 1949) 3:

SYMPOSIUM: APPLIED SOCIAL RESEARCH IN POLICY-FORMATION: *R. Merton,* "The Role of Applied Social Science in the Formation of Policy": To advance social science in policy-formation, attention should be paid in methodology to the relations between the researcher and his client and the researcher and his subject of study. *R. Bain,* "Natural Science and Value-Policy": Social science can approximate answers for value-policy in its making. *S. Barkin,* "Applied Social Science in the American Trade Union Movement": The social scientist, studying trends, can assist the trade union movement in policy and tactics. *D. Cartwright,* "Basic and Applied Social Psychology": By its consequences, social psychology has won prestige to further its research but possesses no ready answers to big contemporary social issues. *P. Hauser,* "Social Science and Social Engineering": The social scientist classifies and organizes social data in a scientific way, while the social engineer makes a practical implementation of a policy. *E. Shils,* "Social Science and Social Policy": Universities rather than government agencies can best do policy research and at the same time further theoretical science. *D. Ulrich,* "A Clinical Method in Applied Social Science": In the making of policy, social science must consider interpersonal relations within the organization affected.

G. Rusk, "General Mensurational Gestaltism": This Gestaltism studies figures within larger figures and is interested in the interrelations, not the absolute values, of the figures concerned.

The Review of Metaphysics, III (Sept. 1949) 9:

R. Wells, "The Existence of Facts": The failure of systems to mention entities, in accordance with Ockham's razor, does not mean that these entities are unimplied. *J. Yolton,* "The Ontological Status of Sense Data in Plato's Theory of Perception": Sense data for P. are multiply located attributes of substance, dually dependent: on object and observer. *A. Fritz,* "Malebranche and the Immaterialism of Berkeley": B.'s immaterialism resembles M.'s views more than an outgrowth of Locke. *P. Weiss,* "Good and Evil": The cosmos, being a kind of harmony, requires evil in order that good may be.

Revue Internationale de Philosophie (July 1949) 9:

E. Castelli, "L'existentialisme: philosophie de la crise": Existentialism is an examination of the individual upon the ruins of idealism and intellectual system. *A. de Waelhens,* "Les constante de l'existentialisme": The originality of existentialism consists in Kierkegaard's

notion of existence joined to phenomenology. *J. Gérard,* "Existence et Position": It is the property of intentional conscience to make a stand as a being in the world. *J. Paumen,* "La sagesse romantique de Martin Heidegger": H.'s search for authenticity invites man to surmount everyday world of affairs. *H. Pos,* "L'existentialisme dans la perspective de l'histoire": Philosophy should be Platonic by emphasizing the universal and the community. Socratic by a stress on freedom, the two trends to be united by social structures. *F. Heineman,* "What is Alive and What is Dead in Existentialism?" The living elements are the stress on the concrete, dissatisfaction with systemism, and the emphasis on decision; certain technical features are dead. *J. Segond,* "Réflexions critiques sur l'existentialisme": Its axiology does not overcome idealism or the priority of essence over existence. *V. McGill,* "Sartre's Doctrine of Freedom": S. would deify man.

Revue Philosophique (Oct.-Dec. 1949) 10-12):

E. Bréhier, "Originalité de Lévy-Bruhl": L.'s influence continues in philosophy and the various anthropological disciplines. *J. Delevsky,* "La perfection et l'infini": Since perfection in life and thought is irrealizable, it ought to be replaced by the idea of infinite becoming. *R. Ruyer,* "Pouvoir spiritual et matriarcat": Women, exercizing spiritual power, have gifts to establish true communities. *R. Cadiou,* "La philosophie de J. S. Mill": M. enjoins us to see things as they are and to wish intelligently. *J. Ullmo,* "La mécanique quantique et la causalité. II": There is determinism in statistics.

Revue Philosophique de Louvain, XLVII (Aug. 1949) 15:

M. Vanhoutte, "La méthode intuitive dans les dialogues de la maturité de Platon": The dialectical method culminates in the intuition of ideas. *A. Maier,* "Les commentaires de Siger de Brabant sur la Physique d'Aristote": Different versions of commentaries ascribed to Siger exist; it is possible that they represent different stages of the same author's thought. *N. Balthasar,* "Mon moi dans l'être et mon moi dans le monde": Metaphysics does not content itself with attaining man abstractly as a rational animal but grasps him in his concrete existence which is the source of the idea of being. *A. de Waelhens,* "Phénoménologie et Métaphysique": Being as transcendental to experience cannot be dealt with phenomenologically.

Revue Thomiste, XLVIII (1949) 1-2:

JACQUES MARITAIN: SON OEUVRE PHILOSOPHIQUE: *C. Journet,* "D'une philosophie chrétienne de l'histoire et de la culture": M.'s

distinctions, such as that between Christianity and Christian civilizations, enable a philosophy of history. *O. Lacombe*, "Philosophie politique": M. has labored to restore politics to wisdom. *L. Gardeil*, "Recherches sur la 'mystique naturelle'": M. admitted that the mind could gain an experience of the absolute, *via negativa*. *A. Forest*, "Connaissance et Amour": Man can affirm otherness and find himself in the experience of that union. *M.-T. Calmel*, "Frontières de la Poésie": M. was aware of the ambitions and distresses of the artist and informed him of his vocation. *M.-M. Labourdette*, "Connaissance pratique et savoir moral": M. was able to unite theory and practice as well as the opinions of various Catholic thinkers by practicing his maxim: distinguish to unite. *R. Dalbiez*, "Le moment de la liberté": True liberty is one of act rather than of potency. *M. J. Nicolas*, "La liberté humaine et le problème du mal": The roots of sin are in the failure to consider. *J. H. Nicolas*, "Le réalisme critique": According to M., realism does not put the critical question first but studies it in the light of judgments, by reflection. *M.-V. Leroy*, "Le savoir spéculatif": The unity and distinctions of science must preserve it as speculative; for only thus can there be a natural harmony of intellectual activities.

Rivista di Filosofia Neo-scolastica, XLI (Apr.-June 1949) 2:

A. Masnovo, "Giacomo Balmes": B.'s writings played a part in the Thomistic revival in Italy; he was influential also by his apologetic and social writings. *L. Pelloux*, "L'evoluzione della psicologia di Aristotele": A. worked from a Platonic period, through an empiricism of transition, to his hylomorphic definition of the soul. *R. Gradi*, "Il valore della vita": Existentialism does not answer to the exigencies of man. *A. Cecconi*, "Per un'analisi della filosofia schellinghiana": S. combines an interest in epistemology with religio-vital ambitions of philosophy. *P. Zampetti*, "La filosofia giuridica di Giorgio del Vecchio": del V., a phenomenist, sought then to establish law through logic and to evaluate it through justice as known to Pure Reason.

Salesianum, XI (Apr.-July 1949) 2:

T. Demaria, "La pedagogia come scienza dell'azione": Pedagogy is neither science nor philosophy but inclusive of both, being a theoretico-functional and finalistic science of action.

Sapienza, II (1949) 2-3:

S. Giuliani, "La vera prova ontologica dell'esistenza di Dio": The argument should read that being can only have its sufficient reason in

itself and therefore the Being conceived as having such reason for its existence must exist. *B. d'Amore*, "Motivi per la difesa d'una più stretta unione tra scienza e filosofia": The union of science and philosophy is greater than their separation; science feeds data to philosophy, and philosophy grounds and guides science. *G. Rossi*, "Esistenzialismo e Cristianismo": Even the moderate existentialism of Marcel, because of its anti-intellectualism, cannot be a *preambula fidei*.

Scholastik, XX-XXIV (1949) 1:

J. Lotz, "Entwurf einer Ontologie bei Friedrich Nietzsche": N. had a Heraclitean ontology of motion, polarized by contradictories. *E. von Ivánka*, "Die neuplatonische Synthese": Aristotle and Plato were blended in neo-Platonism, together with other elements of ancient philosophy; this syncretism provided an organized material for the scholastics.

Scholastik, XX-XXIV (1949) 2:

C. Nink, "Modalanalyse und Kausalprinzip": Contingent being has an entitative stability that cannot ground itself. *H. Becher*, "Die Romantik als totale Bewegung": Romanticism had something to say about every orbit of human experience.

The Thomist, XII (July 1949) 3:

F. Kunkel, "Beauty in Aquinas and Joyce": Though J. cites Aquinas, he departs from him by making beauty the object of the imagination. *A. Kolnai*, "The Meaning of the 'Common Man'": The doctrine of the "Common Man" is a subversive equalitarianism which makes the plain man an absolute and results eventually in his self-enslavement. *J. McAllister*, "Dr. Northrop, Technology and Religion": To judge religion by its material and cultural success is no way to determine its truth or falsity.

Thought, XXIV (Sept. 1949) 94:

R. Chadbourne, "Two Organizers of Divinity": Dewey's endeavor to make a religion out of science and a priest out of the scientist parallels the ambition of Renan with which D. was familiar. *J. Donceel*, "Second Thoughts on Freud": F.'s insights are often valuable but usually tainted with exaggeration. *V. Yanitelli*, "Types of Existentialism": From Kierkegaard's paradoxes, there have developed two branches of existentialism—one atheistic; the other theistic.

Book Reviews

The Philosophy of Anaxagoras. **An Attempt at Reconstruction. By Felix M. Cleve. King's Crown Press, Columbia University, New York: 1949. Pp. xxii + 167. $3.00.**

The author's purpose in writing this book is clearly indicated by the sub-title: "An Attempt at Reconstruction." The keynote of this undertaking is expressed as follows: "When dealing with a thinker of Anaxagoras' rank, we may assume, perhaps, ingenious presuppositions and starting-points, but never any inconsistency or nonsense, in the construction itself." (p. 53). The philosophy of Anaxagoras, Dr. Cleve contends, has been misunderstood from the very start concerning its most essential features. This was particularly the case with the Anaxagorean doctrine of elements. On the basis of the results of a thirty years' research, the author suggests some change in the estimate of the place due to Anaxagoras in the philosophy, not "of the era," but of mankind. Dr. Cleve bases his reconstruction on the following presuppositions: "1. that Anaxagoras was a real philosopher, and not a babbler; 2. that, as after all a human being, Anaxagoras must not be expected to have foreseen what would happen even a single day after his death, let alone some decades or centuries later; and, consequently, 3. that Anaxagoras cannot justly be blamed for not having paid his world-renowned successors enough reverence to harmonize his philosophy with their interpretations." (p. X).

It would be a vain endeavor to try to give in a short space anything like an adequate impression of the riches and beauties in this volume. It is well documented; it has all the marks of good scholarship; is stimulating; temperate and fair in presenting the pros and cons of the divergent opinions. Students of philosophy will find much to ponder in his expositions and criticisms, and those who have a special interest in early Greek speculations will undoubtedly find this publication very palatable.

It is only with considerable injustice that an outline of Dr. Cleve's reconstruction of the philosophy of Anaxagoras can be given. The main division of the book is the following: Part I deals with the constituents of the universe. It is especially in this section that the profound differences between the traditional and the author's interpretation

of Anaxagoras are discussed. Part II presents a thorough analysis of Anaxagorean cosmogony. The chapters of Part III revolve around the elucidation of the proposition: "There are some (bodies) in which Nous, too, is contained." Part IV discusses the infinity in space and time. Part V presents the fascinating topic: "Anaxagoras and posterity." This book is so compact that it is difficult to summarize even its chief characteristics, without leaving some false impressions. To correct these the reader must be referred to a careful study of the book itself.

It seems a safe prediction, in the opinion of the present reviewer, that Dr. Cleve's ingenious reconstruction of the Anaxagorean system will be hailed as one of the most important contributions to the history of early Greek philosophy in years. This work accomplishes its purpose, does honor to its author, and enhances his reputation for careful scientific scholarship. Eulogized by the outstanding European authorities—it will become at once a classic and can be assuredly declared indispensable to all those who interest themselves in the history and speculation of pre-Socratic philosophers.

AUGUSTINE J. OSGNIACH.

St. Martin's College,
Olympia, Washington.

Readings in Philosophical Analysis. **Selected and edited by Herbert Feigl and Wilfred Sellars. New York: Appleton-Century-Crofts, 1949. Pp. x + 626. $5.00.**

The limitations of this review prevent listing the forty-two different selections included in the book. The main division headings are: I, Language, Meaning, and Truth; II, Meaningfulness and Confirmation; III, The Nature of Logic and Mathematics; IV, Is there Synthetic *a priori* Knowledge? V, Induction and Probability; VI, Data, Reality, and the Mind-Body Problem; VII, Problems of Description and Explanation in the Empirical Sciences; VIII, Problems of Theoretical Ethics. The book is excellently designed for readings in intermediate courses and in seminars. Some of the authors included are: A. Tarski, G. Frege, B. Russell, R. Carnap, C. I. Lewis, M. Schlick, C. G. Hempel, W. V. Quine, H. Reichenbach, W. T. Stace, and C. D. Broad.

Scholastic philosophers should read this collection of essays. The editors have chosen a quite representative sampling of modern philo-

sophical analysis, and scholastic philosophers have an obligation to know the problems with which contemporary philosophers are concerned and with the various approaches which are used to meet these problems. In this way, the truly contemporary scholastic philosopher will be abreast of the times, which is not always the case. And if he has a solid grasp of perennial philosophy, he will not only profit from the investigations currently being carried on, but he will also often grasp the real issues at stake in a manner that presumably escapes the contemporary philosopher.

An instance of this is the semantic problem which, in its various aspects, occupies over half the book. Although contemporary philosophers show some real ingenuity in their considerations of this much over-done problem of meaning, their ignoring of certain fundamental distinctions—at least to a person even moderately acquainted with the tradition of philosophy—is sometimes staggering. It perhaps should be added that insofar as the contemporary philosophers are concerned with the problem of meaning in the methodology of experimental science, their work is often truly informative and profitable; insofar as they extend such an analysis uncritically to philosophy, their work is often seriously deficient. It is apparent that in the most important distinctions on meaning, verification, and truth, current semanticists have not even digested the opening lines of Aristotle's *De Interpretatione*, to mention a fairly early source on the matter.

An exception to this is Tarski in his article on "The Semantic Conception of Truth." He approaches the whole semantic problem with truly philosophical vigor and comprehension. He knows some Aristotle and does not hesitate to make use of it whenever profitable. At the same time, and probably because of this, he gives the most profound grasp of the semantic problem in its present form. In this respect, he far surpasses Carnap or Schlick or Frege in semantics, and in logic generally.

C. I. Lewis has a well presented critique of the Vienna positivists in his article "Experience and Meaning," an article which is replied to, but not fully met, by Schlick in "Meaning and Verification." For those who have followed the issue of *verifying meaning*, as originally raised by Wittgenstein and the Vienna circle, it has been interesting to note the abandonment of the naked empirical verification of meaning in favor of a weakened "theoretically possible" verification, with a consequent retreat from that into a "logical verification" of meaning.

It is not impossible that the issue will finally come back to where it has always been, namely, that strictly we never verify an expression to get its *meaning*, but only to determine its truth—or at least its probable truth, which appears to be the meaning of "meaning" in experimental scientific methodology.

Actually, the book should not be entitled "Readings in Philosophical Analysis," but "Readings in Scientific Methodology and Logic." The sections on the mind-body problem and on "Theoretical Ethics" (which is something by way of a misnomer) offer little philosophical value. The main problems and topics in philosophy are simply absent from the book. The merit of the book, however, lies in those essays which are devoted to a philosophy of science and to the distinctively modern reduction of mathematics to dialectic (in the Aristotelian sense of the term "dialectic" as distinct from "logic"). It is here that the contemporary philosophers have done their best work and, in many respects, they can teach us much here which we should be willing to learn.

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Peace of Soul. **By Fulton J. Sheen. New York: Whittlesey House, 1949. Pp. 292. $3.00.**

For more than a quarter of a century, the stream of a solid Christian apologetic has been flowing from the pen of Fulton Sheen. The sources of his inspiration have been mainly two: Holy Writ and the teaching of St. Thomas Aquinas. In his books and sermons, Sheen has stood as a bulwark against paganism of every sort, as a friend of those in search of truth, a guide for the bewildered who are looking for a way of life that will lead to happiness and ultimate salvation.

It is not an easy task, this groping for light, this effort to achieve a peaceful compact with a world full of strife, doubt, and confusion. Most of the trouble is the result of original sin; and if people like Freud and Marx, with reforming tendencies in their blood, had only seen this truth as a key to the meaning of human events, they would likely have shaped their work on a different pattern. In fact, they would have grasped the most profound truth of all: that man has been made for a supernatural end, and that nothing on earth or in hell can change that end. Whether we go along with the idea or not, God so planned our pilgrimage that we should come to a knowledge

of the faith and be saved. Sin spoiled the plan, splitting apart the will of man and his Maker. It is hard to conceive the pits that have been dug and the black abysses that have opened up on the highway from earth to heaven, since the time of our first father Adam.

The problem of peace of soul, therefore, must go back to the garden of Eden for its proper setting. There nature was filled with light and love, abounding in the fullness of original justice. But with the loss of grace, peace too departed; just as pulling a tree out by its roots makes its flowers to shrivel and die. In the beginning, man was at peace because his passions were rightly ordered to reason, and his reason rightly ordered to God. Grace was the force that wrought this heavenly harmony. But with the entrance of sin, the whole picture changed; and every form of disorder that can afflict the human spirit began to be manifest. Now these are the things about which Sheen is concerned, not so much as a man of science as a prophet of God, with deep contemplative zeal and most helpful theological insights for souls in distress. It so happens that most of these matters are also the concern of the psychiatrist, since his is likewise a vocation of soul-healing. But whereas the tools of psychiatry are fashioned for the purposes of a natural therapeutic, those of the theologian work at a higher level where grace is operative, to mend and heal what is morally diseased and to prevent the onrush in of those forces of disintegration that tend to leave the soul of man in despair. And so the psychiatrist and the theologian often find themselves confronted with the same problems, but which they attack from differing points of view, using the genius of their respective sciences to achieve their own proper goals. The areas of contact here are just as delicate as those between nature and grace; so that the greatest caution must be used lest the rights of one or the other suffer any violence.

Thus the psychiatrist is often dealing with the basic reality of sin, of which fears and repressions, conflicts and feelings of guilt are all so many symptoms. The theologian, on the other hand, is often face to face with phenomena that call for some system of natural treatment. One can say that suffering entered the world with the disorder of sin. But how much of personal fault is at the bottom of physical and mental disease is most difficult to say. Sheen is acutely aware of the common dilemma; and besides his effort to solve it with theological norms, he is also trying to lay the foundations of an analytical psychology that will be Thomistic as well as dynamic. The possible relations of grace to nature in areas covered by the art of soul-healing are enormous. Neither the one nor the other can be understood in isola-

tion; and the conversion of the soul to God through physical pain or the darker night of mental disorder is simply part of the overall plan of Providence.

What I believe Sheen is trying to tell the world is that Freud in his right mind was really a good Thomist; that it was only in his moments of phantasy, when he strayed into the bye-lanes of puerile theorizing, that he fell into discredit. It was a serious departure, to be sure, because it involved such issues as the essential freedom of the human will and the ordination of man to a supernatural end. Actually, Freud was running counter to his own findings when he set up his own philosophy and attempted to give the theological implications of what he found in the clinic. Forcing his data to fit the hard and fast limits of a natural determinism, he was simply giving the lie to all that they stood for, like hanging the picture of a saint in a rogues' gallery. The example suggests something further no less true: that it is sacriligous to man and surely a stench in the nostrils of his Maker to rob human nature of its freedom and the possibility at least, of an everlasting crown. Perhaps Freud was not too much to blame. He grew up in an atmosphere charged with all sorts of materialistic prejudices. The wonder is that he got hold of a whole-making view of man at all. Yet, he did, despite his bad philosophy and his primitive conceptions of religion. Sheen would admit (indeed, who can deny) the empirical value and intense realism of the Freudian analysis. But he would set the fruits of all this enormous labor against their proper background: first, in the natural order, within the framework of man's total personality, which is at once material and spiritual; second, in the supernatural order, within the orbit of grace and a divine dispensation which allows for the healing of moral wounds through the merits of the passion of Christ.

The psychiatrist who reads this book sympathetically must understand that the tools of his science have a limited use; that grace has a role to play in establishing the conditions of peace in the human soul. Also, he must understand that sin, not suffering, is the real tragedy of life. He may even go so far as to admit that suffering is good for the soul, provided its goal is the purgation of sin. And most meaningful insight of all, he may penetrate the truth that men can rejoice, like St. Paul, in their physical and mental infirmities since their reward is an interior peace which is as firm and abiding as the God who gives it.

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A Dreamer's Journey. **By Morris Raphael Cohen. Boston: Beacon Press, and Glencoe, Ill.: Free Press. Pp. xiii + 318, with index. $4.00.**

Morris Cohen's journey was a hard one, not an overwhelmingly happy one, and yet it keeps to a note of hopefulness and as measured by what Cohen wanted from his youth to do, it had more than ordinary success. He wanted to know and to help others to know and in that way to free man. The story is in many ways typical of that effected and suffered by the Jewish people for ages: it is a struggle for bare economic survival, a struggle against hate in other people's hearts and a reciprocal hate at times in Jewish people's hearts, a struggle for some shred of political existence, and in some to save Orthodoxy and in others to give up Orthodoxy and at the same time remain loyal Jews and find, as Cohen frankly says he tried to find, some kind of agnostic substitute.

He was born in white Russia where his people, as far back as he could trace, were faithful to the Law, were discriminated against and had a time of it to find the economic wherewithal. By hook and by crook they got to America and had still for the most part the same sufferings and struggles. He learnt from a grandfather in Russia to love truth; on the East Side in the 'nineties he wrestled with the problem of the public school and of learning a foreign tongue and a new tempo; at City College he picked up what we must think a mere smattering of mathematics and sciences; and by what he thinks the best luck of his career he met Thomas Davidson who "made a rule of his life to quarrel with those who agreed with him"; at Harvard, where he managed to arrive by winning a medley of what we would now think little prizes, he roomed with Frankfurter, found Royce the greatest teacher and W. James's vision "gloriously fresh" and his honesty bold.

In these ways he grew in age and wisdom. He thought the most important of these teachers was his grandfather, and we must think that the tough-hided and tough-minded Morris Cohen should also be taken into account.

He had a hard time, loaded with recommendations from all the pundits at Harvard, to get a job teaching philosophy at City College, and it took him years to do it. Meantime he taught mathematics of which his students said he knew nothing, and gave papers before the American Philosophical Association.

He says his ideal was that of the Greeks: "a rational inquiry into nature seemed to be the foundation of the distinctive intellectual traits

of Western civilization . . . the appeal to nature against conventional taboos and the appeal to reason against arbitrary authority." Philosophy in America, he says, had commonly been a branch of Christian apologetics. He strove to make it the love of wisdom, one way to satisfy the eternal search for truth. In this regard Marxist materialism could not qualify, nor could Mill's individualism, or Hegel's and the Hegelians' absolutism. Cohen wanted a view at once social, open and free, and spiritualistic. He felt that he had to make out one, if not actually discover it.

His overall plan was extraordinarily ambitious. Davidson's dream was "a society of scholars building a philosophy for a new age." This dream suited Cohen who hoped he could do or get done something like an encyclopedia of philosophy; and his own works as projected by him and in part done came to a minor encyclopedia. He planned from 1917 a work on law and justice, and in 1934 brought it out in fragmentary form as *Law and the Social Order*. He wanted to do a work on metaphysics, and one on logic which later he and Nagel did as *Preface to Logic* and with considerable success; he wanted an introduction to philosophy; a work on liberalism which would bypass laissez-faireism; he wanted to do a work on American philosophy; to put his papers on Jewish problems into a volume; to do a work on scientific method which appeared as *Reason and Nature*, his most important work; and to do the autobiography. Even this last "dream" was not altogether realized, and the later parts of it do not have the freshness or the consecutiveness of the early chapters.

But all in all his work, none of its validity justified in the present volume, is something for a man to be proud of. Along with his life struggle, it forms what seems to me the greatest saga in American philosophy to date. William James suffered and was initially attractive if not glamorous; but relatively he was a pampered son. No other such as Royce or Santayana or Peirce or Dewey appears to have been so heroic and to have kept from youth so undeviatingly to a work to be done. Possibly the greatest single weakness of his life work, as revealed in the autobiography, lies in his notion, so common to the severely orthodox of many religions, that to leave the rigidly orthodox apron strings means that one must leave religion.

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Le Point de Départ de la Métaphysique. V. Le Thomisme devant la Philosophie Critique. **By Joseph Maréchal, S. J. Second and Revised Edition. Brussels: L'Edition Universelle, 1949. Pp. 620, with index.**

This publication of the Museum Lessianum is the long-awaited second edition of Fr. Maréchal's important work, first published in 1926. Originally, the author planned the work in six Cahiers. His death, however, anticipated the publication of the 6th Cahier and of the corrections and amplifications of the previous Cahiers. The present work offers the original text of Cahier V, the most important and controversial of them all, treating as it does "Le Thomisme devant la Philosophie Critique." The editors of this second edition have contented themselves with correcting obvious errors of the first edition and adding a short article of Fr. Maréchal, published in the *Revue Néo-scolastique de Philosophie* in 1938 under the title of: "A propos du point de départ de la métaphysique" in answer to certain fundamental misconceptions about his work.

"Leçons sur le Développement Historique et Théorique du Problème de la Connaissance," the general subtitle of *Le Point de Départ de la Métaphysique*, indicates that this is a work to be considered by the serious student of the problem of human cognition, and even a superficial acquaintance with the approach there suggested makes it clear that the author's views, whether they be accepted or rejected, cannot be lightly put aside. Fr. Maréchal's work has been the subject of much controversy, but it has never been summarily dismissed or rejected without qualification. Even Gilson, in *Réalisme Thomiste et Critique de la Connaissance* is far more sympathetic with Fr. Maréchal than he is with the other authors on the subject with whom he takes issue. Possibly, the opposition is due in many cases to a misunderstanding of the author's position, perhaps due to the fact that the critics, lacking in the profound training in the experimental sciences and in the philosophy of Kant and of his followers which were Fr. Maréchal's background, fail to understand and appreciate the character of his work. Be that as it may, it seems true that in many an instance, greater study of *Le Point de Départ* has resulted in greater acceptance of the approach there suggested. The very depth of the thought expressed, the character and unusual background of the author and his style itself, which is anything but simple, all combine to invite the misinterpretations on the part of some critics which Fr. Maréchal himself so often had occasion to deplore in the course of his own lifetime.

The problem of human cognition is unquestionably a difficult one. Unhappily, St. Thomas has not treated the problem "ex professo," perhaps because he never considered it as a problem in its own right, and the pertinent passages in his works are of such a nature that they have been appropriated, rightly or wrongly, by quite contradictory solutions. Maréchal considers himself a follower and interpreter of St. Thomas, and his intention is to be faithful to the thought of the Angelic Doctor and at the same time show the application of this thought to the "critical" approach of Kant and his followers. The first Book of Cahier V explains the "metaphysical" and the "transcendental" Critique of the object and compares the two. The second Book, the major portion of the Cahier, is entitled: "Théorie de la Connaissance dans le cadre de la métaphysique Thomiste." Here we have an analysis of objective cognition, the metaphysics of cognition, and the deduction of the ontological affirmation, stressing the element of finality in intelligence. Finally, in the third Book, "La Critique Thomiste de la Connaissance transposée sur le mode transcendental" the author strives to show how Kant's transcendental Critique, purged of its errors, shows points of contact with the metaphysical critique as previously explained.

It would be a grave mistake to consider *Le Point de Départ de la Métaphysique* exclusively as an attempt to refute the transcendental philosophy of Kant, or to harmonize with it the realistic philosophy of Thomas Aquinas. Fr. Maréchal is primarily presenting an integrated Thomistic theory of cognition. He seeks, and is convinced that he has found, in the writings of St. Thomas, an objective affirmation of the absolute order as a true starting point for a metaphysics. Only secondarily does he apply this as an "argumentum ad hominem" to Kant's approach. Nor should it be thought that Fr. Maréchal's concern with the doctrine of the natural desire of man for perfect beatitude makes this doctrine an integral part of his theory of cognition—some have considered this to be the case. This is made clear from an unpublished Latin text of Fr. Maréchal which the editor of the second edition includes in his foreword. 'Imprimis notare velim, hoc unum ad stabiliendam doctrinam meam epistemologicam fuisse logice requisitum, ut ostenderem Ens absolutum in omni operatione intellectuali naturaliter appeti, tamquam finem ultimum *obiectivum*: quod profecto verum manet, sive in immediata Dei visione, sive in analogica Eius cognitione reponamus finem nostrum ultimum *subiectivum*."

The last word is far from being said on the Problem of Human

Cognition, as any one who has considered the question, and most of all, Fr. Joseph Maréchal, would readily admit. *Le Point de Depart de la Métaphysique*, Cahier V, most opportunely appears in its second edition and must be listed as a "sine qua non" in any consideration of the epistemological problem. As a subject of attack or defense, it presents the thought of a great mind, full of deep insight and suggestion for yet further research in the epistemological field.

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***Decadence.* By C. E. M. Joad. New York: Philosophical Library, Inc., 1949. Pp. 430, with index. $4.75.**

A book pointing out the causes of our modern confusion ought to be welcomed. Dr. Joad has aptly considered these causes and their widespread effects in *Decadence.*

The title, "Decadence," as the author admits, is not easily definable. However, he brings out, on numerous occasions, the fact that decadence is delineated by "the dropping of the object": the discarding of the notion of an end or goal and the denial that there can be an object of experience which is external to the experience and which has objective value independently of it.

Dr. Joad's treatise is fundamentally an attempt to bring philosophy back to its traditional function of judging, directing and guiding the arts and sciences. Although he recognizes the *philosophia perennis* of Plato and Aristotle, he intimates that this philosophy has perhaps deterred many initiates because of its obscurity in expression. As a result, philosophy has lost most of its traditional function either by failing to indicate ends and to prescribe values, or by making them obscure.

The principles or causes of decadence can be reduced to the following three doctrines: scepticism in belief; epicureanism and hedonism in conduct; and subjectivism in thought, art and morals. These three schools tend to belittle the "object" and to concentrate upon the sole fact of human experience. From these false principles there logically follows certain false consequences. The practical harmful effects thereof are singled out in the second half of the work.

Dr. Joad's final conclusion: "Our generation has shown a peculiar

neglect of the traditional end of human aspirations and endeavors, namely: truth, goodness and beauty, as expressed in the practice of ethical and political virtues, in art and literature, and in the disinterested pursuit of knowledge for its own sake irrespective of its use and application. . . . Hence our society is in respect of its ignorance or neglect of these ends to be regarded as decadent."

The author may be criticized on several points from the viewpoint of scholastic philosophy. Dr. Joad's tendency to regard H. G. Wells, G. B. Shaw, B. Russell, Locke, Hume, Bentham and J. S. Mill as great philosophers diminishes his previous evaluation of Plato and Aristotle. May not these pseudo-greats be accused of "dropping the object" by reason of their subjective and relative tenets? Dr. Joad is definitely not Aristotelian in his concept of the human faculties: "Desire, will, reason and so on are not separate faculties since it is the whole self which responds as desiring, willing, or as reasoning" (p. 216). He does not recognize that although it is the supposit which acts and operates, nevertheless its actions and operations are through the different faculties. The sweeping statement "that although Aristotle has much to offer in *Ethics* and *Politics*, he has nothing to teach us in his treatises on biology, astronomy and physics" betrays lingering traces of the modern intellectual straight-jacket. The suggestion of the author "that within a couple of hundred years religion may die out" (p. 266) likewise belies his previous analyses of the dignity of human nature which must recognize its obligation towards and dependence upon a First Cause—God. The same inconsistency prevails in his unfortunate receptiveness towards a supposedly eugenic birth control similar to that sponsored by a recent Royal Commission.

At various times the author invokes some 350 different authorities in fields varying from philosophy to biology but his position in regard to them is not at all times clearly determined. The principal merit of the book is its vigorous attack upon Scepticism, Hedonism and Subjectivism, and its subsequent advocacy of true philosophy to permeate man's life in all his activities by its insistence upon objective values which can guide man to his goal. Unfortunately he fails to elaborate upon the school of philosophy which might bring this resurgence out of decadence.

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The Natural Desire for God. **By William R. O'Connor. Milwaukee: Marquette University Press, 1948. Pp. 90. $1.50.**

The thesis that all men, in seeking happiness, are in truth seeking God, is not questioned. The question is about a natural desire in man for God. This is the subject matter of the 1948 Aquinas Lecture delivered by Fr. William R. O'Connor under the auspices of the Aristotelian Society of Marquette University.

Today scholastic philosophers teach that happiness is a striving toward the universal good, toward good in general and that when interpreted objectively, happiness means God, and subjectively, the possession of God.

Fr. O'Connor, in a scholarly, succinct manner (57 pages with notes) takes the view that Plato and Aristotle before and Plotinus after the Christian Revelation held the natural desire of man to be for the Good, the Prime Mover, and the One, which however, they did not identify as God.

St. Augustine, influenced by Christian Revelation, for the first time, identifies the object of natural desire as God. But it is the will, independent of knowledge, that is necessitated toward God.

St. Thomas, however, breaks with Augustinian tradition, and giving primacy to the intellect over the will holds that happiness must first be known by the intellect before the will inclines toward it, and further St. Thomas does not identify God with the good in general. Because man is finite the vision of God is naturally unattainable.

The modern interpretation of the "natural desire for God" similar to the Augustinian prompts Fr. O'Connor to say that although the teaching of St. Thomas Aquinas broke with a long tradition, almost immediately "the tradition closed in again in the person of John Duns Scotus, and the terms in which he stated the problem have lasted down to the present day." And now today, he adds: "Our century is witnessing a resurgence of the Augustinian-Scotistic position."

Such a modern interpretation might result (this reviewer thinks) from considering that, if the term "natural" is to mean a being that is finite and if we can never refer to the Infinite, as having a nature, but only as a Supernatural Being, we are obviously using "natural" to mean "finite" and "supernatural" to mean "Infinite." In this meaning of "nature," both the limitation of our human finite nature and the analogy of being therefore, do not permit us to terminate our desire for God in this life. But if we apply the term "natural" to

any reality, even if analogically, then a "real" desire toward real fulfillment which is not had in this life, makes the natural desire no less real, and makes God as the terminus of that desire no less a real actual necessity. It is simply a matter of which state of duration the natural end becomes fulfilled in—whether in this life temporally, in the disembodied state of the soul after death and until resurrection, or in the resurrected state. Throughout these states the nature of man prevails adequately or inadequately. There is already a real connection between God and man, for man's nature is really from God. Since we admit a real Alpha, why deny the real (natural-for-man) Omega?

Fr. O'Connor's brief but important work may encourage other scholastic philosophers and theologians to contribute to a further elaboration of this topic.

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Philosophy in Literature. **By Julian L. Ross. Syracuse: Syracuse University Press, 1949. Pp. x + 286, with index. $3.00.**

In the trenchant satire of *The Loved One* Evelyn Waugh unerringly seizes upon the salient characteristics of "American innocence." "I was progressive at College," Aimée confides to her Guru, "and had an unhappy upbringing as far as religion went and other things too, but I am ethical." It is for the Aimée Thanatogenoses of this world that *Philosophy in Literature,* the product of a teaching experiment based on a totally gratuitous idea, was written. Apparently philosophy courses were not being elected with much abandon at Syracuse; somebody hit upon the project of teaching philosophy from what were considered its most engaging sources: the literary works in which philosophy lies imbedded. Here, we are asked to believe, is philosophy in its most attractive, most viable incidence. René Wellek and Austin Warren, in their recent *Theory of Literature,* call such violation of form the "extrinsic approach" to the study of literature; its articulation with philosophy is surely more tangential still.

Removed, too, from the austerities of both disciplines is the jaunty address which can describe Plato as a "college president" and Lucifer as a "fascist." These epithets are fingerposts to the popular mind; it is as a landscape of a mind dedicatedly contemporary, one which ransacks the past to finds its own image, that this book impresses. Its

assumptions are that the currently received answers are "progressive," ethical, and satisfactory; they are the given: all that remains is to take an amused look at philosophy's perennial questions.

Ross finds the leading questions of metaphysics, epistemology, and ethics in the literatures thrown up by hedonism, stoicism, the "rational ideal" of Plato and Aristotle, and finally in what he identifies (as did Henry Adams) as the religious emotion of Christianity. FitzGerald's version of *The Rubaiyat* leads off a consideration of hedonism in which Epicurus, Aldous Huxley, and Shakespeare's Falstaff are discussed. Curiously, Maurice Morgann's classic *apologia* for Falstaff as a "lawless meteor" is not even glanced at. (Still, this is nothing for a book which can engage in an elucidation of Dante over several pages without once mentioning St. Thomas.) For hedonism we are given this summing up: "All we can say is that, taken alone in its extreme form, without admixture of other forms of conduct, it fails." The stoic fails, too, though not so roundly, because of his "trust in the majestic march of natural law"; still his system, even more than hedonism, is "in some circumstances an admirable attitude toward life." Plato and Aristotle are similarly found full of suggestion, and yet somewhat cold and inadequate. Aldous Huxley's *Brave New World* is taken to serve as counterpoise to Plato's "ultra-rationalism." Aristotle is unethical, it appears, for his Golden Mean results in automatic virtue and a "surrender of man's cherished power to keep his decisions free and flexible." Only to pantheism is profundity granted.

With the chapter entitled "The Pitfalls of Christianity"—chief of which seems to be "the forgiveness pitfall"—the landscape takes on major and familiar outline. Here we have a long and remarkably inapposite treatment of *The Divine Comedy*. Ross waives all consideration of the poem as poem; he is on the trail of Dante the philosopher. The baleful conclusion that Dante fails of being the poet of benevolence is not hidden for long. Dante is a "sad" poet; one gathers he might be likened to John Stuart Mill's celebrated friend who was "much more susceptible to the painful sympathies than to the pleasurable." The Christian concept of God's justice reflected in Dante is, this book states flatly, "ethically harmful by any standard." Hell is "useless" because it provides "no chance for reform," just as the vision of the *Paradiso* is without meaning, for its beatitude is "a relinquishment of moral initiative," and heaven's saved souls "become ethically sterile because they have lost touch with humanity." In a later chapter occurs this wholly characteristic example of the author's

muddle: ". . . is it possible for God to die? If so, then his non-existence is conceivable. If not, then that possibility limits him, and he is no longer a perfect being."

Of course this book is not without its cogent touches, its neat summaries and juxtapositions, its small victories. One may read, for example, of the Shavian "corrective" to Christian literature and then of Shaw's own shortcomings, particularly his too "strenuous" concept of the life force. Of Shakespeare, Dostoevsky, and Conrad some incontrovertible, and perfectly obvious, things are said. But for the most part, what we have here is the contemporary waste land, now forbiddingly stark, now curiously littered.

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Les Doctrines Existentialistes de Kierkegaard a J.-P. Sartre. **By Regis Jolivet, Abbaye S. Wandrille: Editions de Fontenelle, 1948. Pp. 372.**

Though Jolivet's work is valuable for its clear and piercing analysis of the doctrines of representative existentialists, it seems to this reviewer that its worth (especially for the teachers of the history of philosophy) lies in the careful attempt (1) to find a definition of the term, existentialism, inclusive enough to be applied meaningfully to the widely divergent doctrines that are loosely and popularly designated by it; and (2) to furnish a plausible and workable basis for a classification of the existentialists under the generic definition. It would seem difficult to formulate a definition that could be applied equally to Jaspers, Heidegger and Marcel. But Jolivet finds that in spite of marked and even radical differences among existentialists a sufficient number of common characteristics can be found to form a definition. This definition states that existentialism is "l'ensemble des doctrines d'après lesquelles la philosophie a pour object l'analyse et la dèscription de l'existence concretè, considerée comme l'acte d'une libérté qui se constitute en s'affirment et n'a d'autre genèse ou d'autre fondement que cette affirmation de soi" (p. 24).

The first section of this work is a study of Kierkegaard and Nietzsche as precursors of contemporary existentialism. The reader will find the chapter on Nietzsche most revealing, since the influence of Nietzsche on the early development of existentialism—an influence which Jolivet

finds more important historically than the influence of Kierkegaard—is not often mentioned in popular discussions. In the main section of the work the author analyzes the doctrines of four representatives of existential philosophy—two representatives each of the two principal currents of existentialism. Heidegger and Sartre, in spite of the many differences between them, he groups together not so much because both have been deeply influenced by Husserl's phenomenological method but because both are trying to develop a metaphysics of existentialism, an ontology—an attempt which sets them at odds with men like Jaspers and Marcel who are representatives of the second main current of existentialism. To this second group the concrete analysis of existence excludes the possibility of a formal and systematic philosophy of existentialism. This thesis of the second group would certainly seem more in keeping with the spirit of Kierkegaard and more consistent with the basic tenets and methods of an existential philosophy. However ingenious are the speculations of a Heidegger or a Sartre, they can lead but to a nihilistic conclusion. The end result of Sartre's metaphysics is that "man loses himself, insofar as he is man, so that God may be born, but, since the idea of God is a contradiction, man loses himself in vain" (p. 250).

Jolivet's analysis of Heidegger's works will prove especially valuable to the American reader who has not such ready access to source materials, as he now has for Sartre. Perhaps, as did this reviewer, he will find in the short but clear list of definitions of the principal terms of Heidegger's philosophy (p. 85, note 13) the key to the understanding of this highly involved philosophy.

In keeping with his announced purpose of studying his subject from an historical, objective viewpoint, Jolivet confines his personal critical remarks to the notes and to the conclusion. For this reason this book furnishes the teacher of philosophy with an accurate and objective knowledge of this important contemporary philosophical movement and a scholastic interpretation and evaluation of it. Perhaps, the chief criticism of existentialism is the unfortunate predicament of its chief proponents who, yearning for a satisfying insight into the heart of being, have rendered such an insight impossible by their first principles and their constraining phenomenological method.

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Psychologie Réflexive. **By André Marc, S. J. Brussels: L'Edition Universelle, 1949. Vol. I, pp. 382, with index; Vol. II, pp. 422, with index. Fr. 475.**

The author proposes to make a rational and critical investigation of human knowledge, somewhat after the manner, he says, of Kant's *Critique of Pure Reason.* But his purpose and starting point are different. Fr. Marc's objective is to construct a positive theory of the will, of liberty, and of the human composite in the hopes of justifying, against Kant, the validity of metaphysics.

His starting point, and indeed the thread running throughout the treatise, is language, which Fr. Marc submits as the typically human act, involving sensibility, intelligence and will. From an analysis of signs as language, he proceeds, in Book I, to explore human knowledge in its sensual and intellectual aspects, to consider the existence of active and passive intellect, to dwell upon universals and intellectual abstraction, and concludes with a chapter on logical truth and error. In the course of dissecting knowledge, he finds desire or, as it is called, rational appetite or will. Book II takes up this second principle of language. It justifies the faculty's existence and man's powers of self-determination, and studies the function and destiny of freedom and the fact and growth of habit. Turning again to language, the author discovers in the unity of action displayed by the diverse faculties of sensibility, intelligence and will, reason for positing an underlying principle of that unity. Book III then goes into the question of the existence and nature of the spiritual principle in man, with the collateral issues of how it enters into the human composite and produces at once an individual and a person.

Without disputing the author's view of language as a most typically human function, I find his statement difficult, that "Toute parole est un signe, a un sens. Autrement, elle n'est qu'un bruit. Inversement, tout signe est parole" (I, 19) Is it true that all signs are words? If *parole* means, as the context implies, arbitrary oral sounds which humans use for communicating, how can every sign be a word? Smoke, pictures, footprints, traffic signals are signs; so is a dog's yelp and an infant's cry. But do any of them qualify as words! Perhaps the author would reject them as signs, because they are not words. Then what are they? And isn't this begging the question as well as doing violence to language? There seems to be no good reason for identifying signs and words. It is better to keep them separate, and define a sign

as anything which, being perceived, leads to the knowledge of something else. Signs in this sense can then be classified as natural and artificial and as imaging or not imaging what they signify. Words are evidently artificial, non-imaging signs, but the converse does not follow.

Likewise there is reason to question the author's solution to the problem of how man knows particulars. Following Suarez, Fr. Marc explains that the intellect knows singulars in the material order by an idea as proper as that by which it knows universals in the immaterial order. For proof he appeals to the judgment "Peter is a man." Two distinct abstractions are involved: one for the singular results and the other for the truly universal.

It is naive to think this is "proved" by the judgment about Peter's being a man. Fr. Paul Siwek, S. J., voices the Thomistic and more generally held view, that man has intellectual knowledge of singulars only indirectly, through his apprehension of universals. There are not two distinct abstractions, nor is the singular priorly and directly apprehended.[1]

Psychologie Réflexive is not without merit. Its originality and sensitivity to modern and contemporary philosophies, its able and sincere efforts to champion man's highest prerogatives of spirituality and freedom are effective and sometimes inspiring. Yet the work lacks cohesion. It is too much a mélange. It gives fascinating glimpses of opposing views while too often leaving its own side weak and unconvincing. The absence of formal demonstration has advantages, but it is doubtful whether this book gains by it. I cannot view but with distaste its emphasis upon man as mind and soul. The truth is that man is not mind. Neither is he soul. Neither is he a collectivity of atoms, just plain or with the perfections of life and sensation admitted. Man is all of these things together—not just in the unity of the individual but in the mysterious unity of the human person. There is only one subject, and that is man in his immense, microcosmic complexity. Psychology of any sort must reckon with the whole and entire man. But as much of a truism as this is, it seems frightfully difficult to have it realized in fact.

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[1] *Psychologia Metaphysica* (Rome, 1939), pp. 294 ff.

Ideological Differences and World Order: Studies in the Philosophy and Science of the World's Cultures. **Edited by F. S. C. Northrop. New Haven: Yale University Press, 1949. Pp. xi + 486, with index. $4.50.**

In his Introductory Preface Northrop deplores the lack of world unity, suggesting that this condition is primarily the result of the failure to resolve the ideological differences in the world's cultures. To remedy this deplorable situation, he has assembled a heterogeneous collection of essays by various scholars. In so doing he exhibits a rather common tendency of scholars to be seduced by the charming and flattering notion that if the scholars of the world unite, the rest of mortals will follow their noble example. The thesis is as old as the Socratic formula: knowledge is virtue. Consequent upon, and allied to, this notion is another doctrinaire liberal error: that if each member of the choral group sings his own tune lustily enough, the cacophony will be spontaneously reduced to harmony.

In view of this confusion of purpose on the part of the editor, it is not astonishing that the essays which follow are chiefly distinguished for their differences. One could have wished that Professor Northrop had been guided more by some principle of order in his selection of topics. This is not to deprecate the individual excellence of many of the essays, but rather to question their inclusion in such a work as this. For instance, while one explores with Roscoe Pound "Toward a New Jus Gentium" and with Gray L. Dorsey "Two Objective Bases for a World-Wide Legal Order," he is also invited to sandwich in side trips with Chaing Yee ("The Philosophical Basis of Chinese Painting") and Clyde Kluckhohn ("The Philosophy of the Navaho Indians"). Since there are twenty-one essays in the book, and since some of the titles themselves are almost of essay length (sample: "The Pythagorean and Platonic Scientific Criterion of the Beautiful in Classical Western Art" by Matila Ghyka), there is no possibility of even listing them all, to say nothing of criticisms. I can only refer specifically to two of the essays, impelled by the same arbitrariness in my choice that characterized the editor in his.

In his "Toward a New Jus Gentium" Pound sees the problem of world order in terms of a universal acceptance of the natural law philosophy. No one better than he recognizes the struggle that goes on in this country between the protagonists of the natural law concept and the pragmatists. He suggest two reasons why natural law has lost

favor: (a) "Not only did the political changes of the rise of the democratic governments undermine the law of nature and nations but its philosophical basis was undermined and the universal idea on which it had originated and proceeded gave away at the same time" (p. 5); and (b) the natural law which the pragmatists have rejected is not so much the natural law of the Greeks and the great medieval thinkers, but rather the natural law of the 18th century rationalists. "But granting that the 17th and 18th century law of nations will not serve us, it does not follow that a new phase of legal-moral order is not possible. In the present generation there has been a well marked revival of the universal ideal throughout the world. . . . Revived natural law, Neo-Thomism, and Neo-Idealism at least divide the world of thought with the give-it-up philosophies and the cult of force" (p. 6). For this reason he thinks that "there is no need of skepticism as to a world legal order" (p. 7). Nor does he think that a world legal order must of necessity annihilate national sovereignity: ". . . it is not the function of law to wipe out these differences (among men) and reduce all men to a uniform cultural political pattern" (p. 8). Since the unified authority of the Church was wrecked during the Reformation (p. 3), the only agency left that can spread this concept of a world legal order is the universities: "Without expecting miracles from education, and conceding that the work of organized education might be done better" (p. 13), he feels that "our American universities will be consulting their own best interest in looking beyond vocational training and research and furthering an ideal of a world ordered by law" (p. 17).

In contrast to Pound's essay, one reads quite different proposals in P. W. Bridgman's "The Potential Intelligent Society" (pp. 229-249). Accepting the positivistic-pragmatic creed with a sublime act of faith, he argues that "there is only one reliable method of being sure that we have the correct answer to any problem. This is the method of actual application to the situation in question; that is, we must test our solution by finding whether or not it works" (p. 223). This potentially intelligent society will dispense with the idea of purpose as being only "a pseudo question" (p. 241). Such propositions will presumably come easier for this society, since it is already clear that "our minds are a phenomenon of the human nervous system" (p. 245). Though he offers the reader a ray of hope that the religious man will not necessarily have disappeared from the eventual society (p. 248), he is forced to conclude his observations by taking a pessimistic view of the future "if he (i. e. Toynbee) is right in his belief that religion must continue to play the same role in the future that it has in the past" (p. 249).

The other essays, both with regard to their approach to the problem of world order and the general excellence of their presentation, are situated variously between these two.

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The City of Reason. **By Samuel H. Beer. Cambridge: Harvard University Press, 1949. Pp. viii + 227. $4.00.**

In his preface to *The City of Reason,* Professor Beer explains the aim and scope of his study: "This book . . . is concerned with the philosophical ideas which support the theory of a free society. . . . I have approached this task from a familiar problem of philosophy . . .: Why should man try to control his future and make his history in a world which seems to be governed by a blind and lawless fate?"

Part I, entitled "Doubt of Truth," reasons that since future events remain contingent and uncertain, purposive planning in an irrational world seems useless in the political or any other order. Part II, "Doubt of Right," argues from the differences in particular moral codes to the apparent impossibility of any objective morality governing private or political life. Part III, "Theodicy," examines Plato and the Old and New Testaments to see whether they can show that the world is directed by "One Power" that makes a universe rather than a multiverse. The examination is, on the whole, disappointing. Beer finds that a solution to his problem is suggested by Whitehead's philosophy of creative advance, which he associates with Hegelianism. Since being is becoming, nothing is ultimately lost, and human purposes will finally be realized. There is an intuition of, a faith in final purpose which leads man to make this world as good a place as possible. The society sketched in the conclusion of this book is, in this reviewer's opinion, a generally sound picture of what a political order should be. Whether Whitehead's metaphysics provides any stable foundation for such an order is another matter.

The City of Reason is a clearly written and sincere attempt to find a philosophical basis for a truly human civil society. Its great merit is to have expressed the fact that politics is ethics and that ethics is founded in metaphysics, that you cannot construct a true political order unless you first know what man is and what sort of world he lives in.

It is unfortunate that this member of the Harvard Political Studies should be marred by typographical errors (p. 24, 4th last line; p. 77, l. 3; p. 78, l. 15; p. 101, l. 18; p. 140, l. 21; p. 146, l. 19; p. 180, 5th last line; p. l. 99, l. 22).

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Insight and Outlook. **By Arthur Koestler. New York: Macmillan, 1949. Pp. xi + 442, with index. $5.00.**

In *Darkness at Noon*, Old Bolshevik Rubashov had many cosmic difficulties as he meditated in the shade of the gallows. Arthur Koestler presented them admirably. In *Insight and Outlook* he sets out to analyze and resolve them. Like so many others, Koestler is adept at representing the darkness—and not to mistake darkness for light is certainly a merit— but his attempt at dispelling the darkness is less successful. Liberal materialism does not throw a very bright beam.

Koestler's insight is to show the fundamental pattern in man's creative activities: humor, art and discovery—symbolical of art and science. From this there should emerge, according to Koestler, the possibility of a system of ethics neither utilitarian nor dogmatic, "derived from the same integrative tendency in the evolutionary process to which the creative activities of art and discovery are traced."

Koestler's unquestioning point of departure is thus materialistic evolution, involving the designation of imagination as the supreme faculty. For practical purposes such as navigation any mental construct susceptible of producing a quick result, like the assumption that the stars move around the earth, is in order, whether or not the assumption is objectively true. But in the pursuit of truth one cannot expect to deduce eternal verities from purely hypothetical premises. This is the fundamental critique of Mr. Koestler's book. He does not start from either self-evident or demonstrated realities, and consequently his conclusions, ingenious though they may be, are at best—and in Koestler's own terms—the product of his imagination. The price thereof—pages of jargon of a neurophysiological nature—is likewise a little high, as in the analysis of the transition from the ancestral cortex to the newly developed pallial cortex in which one "thinks." (The quotation marks are Mr. Koestler's.)

The hypothetical conclusions themselves, arrived at through a tedious

welter of diagrams and esoteric terminology, are internally discordant. Koestler is indeed a seeker after the ultimate, but appears to be the victim of his own premises. While sensing below the surface of the multiplicity of existence and its apparent conflicts a unifying principle in which are located "all ultimate causes . . . eternity . . . infinity," he is held captive by his own materialistic preconceptions. He must vainly pursue in prime matter what is found in pure act, and in the formless the fountain of form.

Certain encouraging heretical tendencies are evident. Koestler is not a believer entirely at peace with himself, not entirely submissive to modern dogma. Could he dare to disentangle himself completely from the gospel according to Darwin and Hegel, his own native analytical gifts and his solicitude for the ultimate might well bring him from darkness to high noon.

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Barbara Celarent. A Description of Scholastic Dialectic. **By Thomas Gilby, O. P. London: Longmans Green. Pp. xiii + 303, with index. $4.00.**

What Fr. Gerald Vann's enchanting *Morals Makyth Man* did for Thomistic ethics, this book attempts to do for Thomistic dialectic. And it is, if that be possible, an even more notable success. It is a popular book and a delightfully witty book, but it is nevertheless erudite and profound. Fr. Gilby has not only an encyclopaedic knowledge of St. Thomas and an admirable acquaintance with English letters, he has a rare appreciation of the modern temper, its insights and its short sights in matters philosophical, and he knows just how to bring to bear on the problems that perplex the contemporary mind the ordered vision of St. Thomas. Though the book was "worked up between action stations in H. M. S. *Renown*" on which Fr. Gilby served as chaplain in the recent war, the charm of the style and the appositeness of the hundreds of quotations and references bespeak much careful re-working. Only the saltiness and the nice regard for the proper balance between contemplation and action are there to remind the reader of life at sea in wartime.

This is not dialectic in the corrupted sense in which that term is taken as synonymous with formal logic, but the *logica tentativa* of an

authentic Thomism, to be renewed in every age in keeping with the spirit of that age. In the author's words, ". . . any philosophy that is working with 'historical' reality cannot remain with the explication of essences, but must embark on mixed demonstrations, that is combinations of necessary propositions and observations of fact, and cast about all round any subject it is considering. Here dialectic will operate." And "cast about all round" many subjects the author certainly does. Into three hundred pages he has packed thirty-three chapters, setting forth the basic principles of minor and major logic as pithily as possible in a dozen or so of these and for the rest dwelling on the applications of these principles to a hundred controversial questions in biology, politics, theology, history, mathematics, and psychology. If this is in no sense a textbook of logic, it is the sort of work which read in conjunction with a required course in logic could do much to bring that subject back to life for the student, perhaps even for the instructor.

Undoubtedly the heart of this splendid book is in the chapter on analogy. What Fr. Gilby says of St. Thomas' masterpiece: "The *Summa Theologica* is one prolonged argument by analogy," might with proportionate correctness be said of his own work. Indeed, it is largely his vibrant sense of analogy, of sameness and difference rolling through all things, that enables him to treat so many and so varied topics with wisdom and address. His ear is attuned to the common harmony, but it never fails to hear out each note in the chord. "If logic is to serve and be present in every play of spirit, guiding every adventure, keeping neither to the rails of univocation nor losing itself in the labyrinth of words, then it must possess a theory and a practice of analogy." And again: "The clearness of univocal notions will be appreciated; they are definite and edged; they chart a fixed and rational clearing in a confusion of hints, but do not explore the recesses of reality." But "analogical ideas are not so crystalline as univocal ideas; there is more of a shimmer and a mist about them. They respond to beings which have an internal variety and degrees within themselves; they express perfections that can be differently pitched. They are like shot silk compared with plain dull cloth." The implications for logic and philosophy are plain: "If logic is to be a fit companion for a lively philosophy then it must welcome, if sometimes hard put to, the habit of ranging abroad and finding familiarity among things at first sight so different," and "scholastic philosophy, because of its logical polish and commonplaceness, needs to draw on living experience lest it become a pharisaism of forms."

The student who is bored by illustrations of the "Every man is

mortal," "All metals are electrical conductors" type will welcome refreshing inductions like "Babies cannot spit straight" and "You can't nail a jellyfish to the wall," while the teacher who is aware of the potentialities for pedagogy of human risibility will thank the author for a score or more of witty exemplifications of principle. This reviewer only wishes that he had made the chapter on sophisms and dialectic twice as long and had given us three times as many illustrations.

In the important chapter on "Method of the Sciences" the author has again managed to put his finger on the nub of much misunderstanding between science and philosophy.

> The scientist begins where the plain man leaves off. His method is technical experiment, not homely experience. . . . Yet he must never deny his origins nor forget that ordinary straightforward sensation is presupposed and is present in all his experiments . . . a scientific fact differs from a plain fact: art has entered, in a sense the fact is now cooked, not raw . . . scientific facts are elaborated and defined in terms of scientific instruments of measurement. . . . A scientific fact is therefore literally a fact, something constructed rather than sought, the *datum* has become a *factum*.

It follows that "the scientist has no right to adopt a cocksure air, as though he were the man of sense and the philosopher the man of dreams . . . as if to say, I deal with facts with no frills or fancies about them. In truth, if anyone is to be stigmatized for credulity it is the man of science who is unaware and uncritical of the assumptions he makes, and who does not allow for the tendency of abstract ideas to harden into concrete things."

The scientist is no mere collator of facts. "Scientific curiosity has a bent for theory, and it is here when hypotheses are inflated into theories that we should grow cautious. . . . A useful hypothesis may be a false theory, in the sense of affirming a false philosophy. The scientific hypotheses of mechanism and atomism have carried us on the road of discovery, nor are they yet obsolete; this will be admitted by those who reject them as false philosophies. Similarly, the Freudian method and hypothesis is one thing, but its erection into a general philosophy and complete interpretation of human nature quite another." Can the scientific bent for theory be satisfied, then, only by the scientist's becoming a philosopher? Apparently this is the case as far as the author is concerned: "As soon as he starts to theorize, which being a man he is bound to do, the experimental scientist is by way of becoming a philosopher. If he reckons with the element of cognition

in his science he is raising the problem of knowledge. He then needs the backing that philosophy alone can provide. He may deny this. Then he is a bad philosopher, not a bad scientist."

This, if the reviewer may enter a respectful demurrer, is a little bit pat. Surely there is place for a relatively autonomous scientific *theory* that will be more "than a chart of points representing scientific facts, joined by lines representing scientific laws, with diagrams superimposed representing scientific hypotheses," and that will still fall far short of being philosophy. Is it not possible for an explanation in terms of proximate causes to be a genuine *explanation*? If so, must it "stop at the proximate conditions and factors for certain classes of changing being and sometimes perhaps do little more than resolve one set of facts into another set of facts which themselves are left unexplained?" There is a deductive and explanatory side to investigative science—which the author in effect admits when he says that "hypotheses may amount to true theories, reflecting what really is in the nature of things"—that here seems to have been overlooked. In the measure of its validity the scientific hypothesis is not merely a "superimposed diagram" but a veritable explanation of "how"—though surely not of "why"—a given set of predictable phenomena come about. To say, therefore, that "The inductive method is predominant throughout the experimental sciences, but there are always the undertones of philosophical intelligibility" is, while speaking truly, to omit much that ought to be said of the co-presence within investigative science of explanatory modes that are neither inductive nor philosophical.

Negative criticisms are difficult where the book in question is in so many ways without a peer in its field. Fr. Gilby has made an important and I believe lasting contribution to scholastic literature. Yet the reviewer cannot help wishing that one or two topics had been differently or more adequately handled. The distinction between induction and the syllogism, the forms of hypothetical discourse which are so widely used in everyday thinking, the congruencies between traditional and mathematical logic, are slighted or glossed over rather than treated at length. Perhaps these minor flaws arise rather from the modesty and economy of the author's purpose than from any intrinsic defect. In all, at any rate, they detract very little from a work of rare scholarship, penetration, humanity, and charm—a model of presentation that every philosophically literate person will want to read and re-read.

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Book Brevities

Das Seelenleben des Heiligen Thomas von Aquin. By MARTIN GRABMANN. Fribourg, Switzerland: Paulusverlag, 1949. Pp. 124. No price quoted.

This excellent study, perhaps the last of the late Msgr. Grabmann, distills the spiritual life of Aquinas from the *Acta Sanctorum* and from his own works. Great weight is laid on the virtues of wisdom, charity, and peace. The book will be inspirational as well as instructive to serious scholars in all fields, philosophical and otherwise.

Man's Destiny in Eternity. The Garvin Lectures. By ARTHUR H. COMPTON et al. Boston: The Beacon Press, 1949. Pp. vi + 235, with index. $2.75.

This is a series of nine Garvin lectures on God and immortality. Though not of even merit, they are for the most part all highly significant. Of especial interest will be the first lecture by Compton who shows by a rather unusual logic that modern physics does not exclude but requires the concept of a personal God. There are other lectures by such figures as Maritain, Niebuhr, Hocking, and Dean Sperry.

The Ethics of Ambiguity. By SIMONE DE BEAUVOIR. New York: Philosophical Library, 1949. Pp. 163, with index. $3.00.

Man is here told that he is caught by contradictions and foredoomed to failure. He is enjoined to accept the failure and seek to prolong freedom, his own and others' as his moral code. The author is one of Sartre's disciples.

Philosophies in Brief. By FREDERICK EASTBURG. Boston: Bruce Humphries, Inc., 1949. Pp. 78. $2.50.

This is a rather non-systematic sketch of some leading philosophies; though labelled as an introductory course in philosophy, its lack of completion and rigorous order would hardly commend it. Besides there are notable errors, like putting Aristotle among the idealists.

In Librum Boethii de Trinitate Questiones Quinta et Sexta. Edited and with an Introduction by PAUL WYSER, O. P. Louvain: E. Nauwelaerts, 1948. Pp. 80, with index. Fr. 61.

This important new reading, based on the autograph Cod. Vat. lat. 9850, touches two major questions on the nature and division of speculative knowledge. Its principal departure from existing texts is the use of *separatio* to characterize metaphysical abstraction and to put it off from the other two orders below it. Fr. Wyser has rendered a notable service to Thomism in providing this new edition. But how important is the term *separatio*? Perhaps Leroy has taken the most dependable view in *La Revue Thomiste* (XLVIII) 1948, 328-339. Those who are interested in the nature of science will be interested in this whole controversy, especially in the text of the two questions which Fr. Wyser has re-edited.

L'Homme de Sartre. By BENOIT PRUCHE. Paris: Arthaud, 1949. Pp. 128. Fr. 230.

Based on Sartre's literary as well as philosophical works, this study finds that Sartre's central error (after which he proceeds very logically) is a refusal of being and that a true philosophy ought not to be characterized by refusals.

The Mathematical Analysis of Logic. By GEORGE BOOLE. New York: Philosophical Library, 1948. Pp. 82. $3.75.

This pioneer document in the development of symbolic logic has been very difficult to obtain. Though dealing chiefly with the calculus of classes, this work can be a personal as well as historical introduction to all mathematical logic which has now become such a complex subject as to frighten off the beginner. This work was first published in 1847, and its present publishers have served the interests of scholarship in again making it available.

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